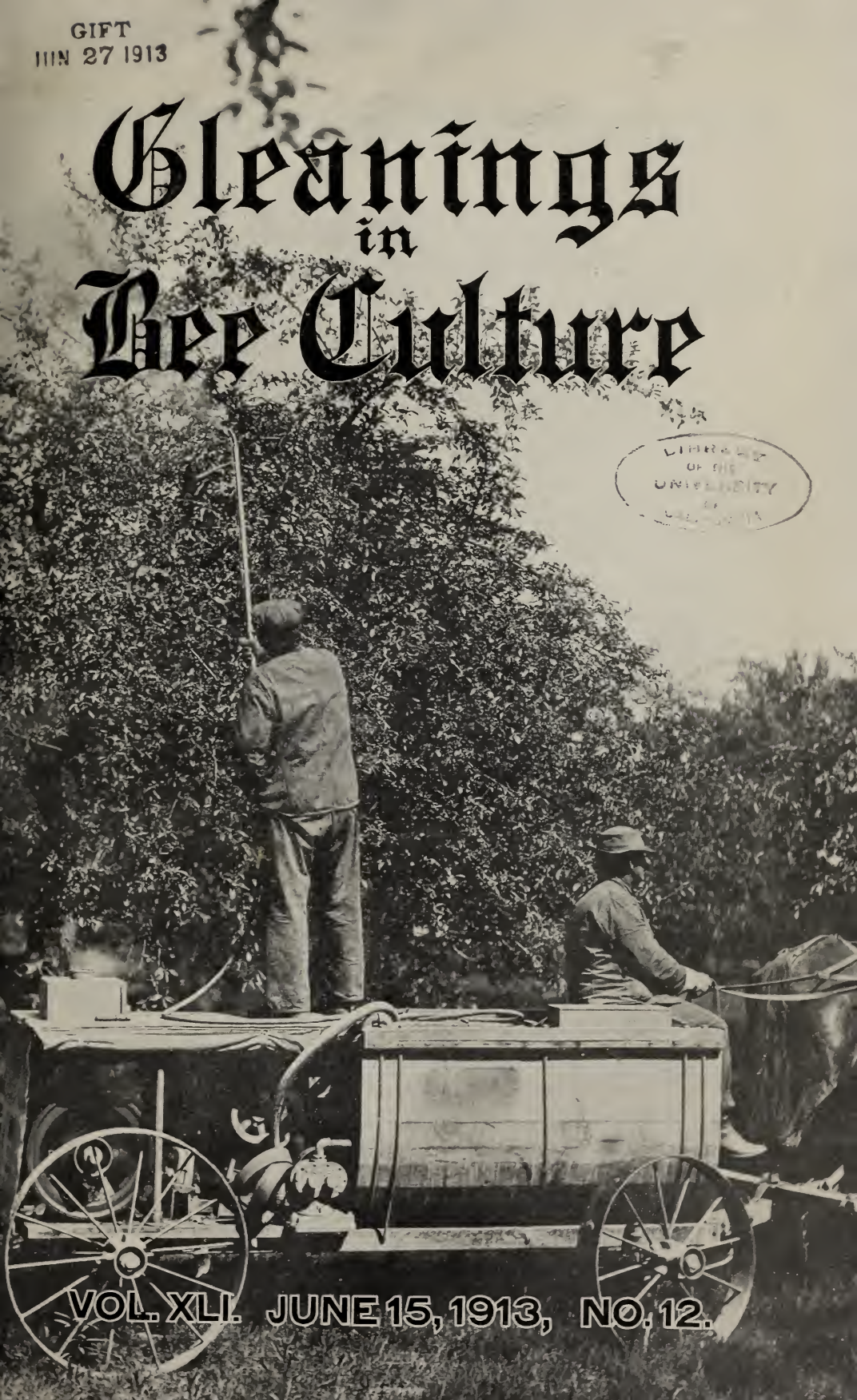
Gleanings in Bee Culture



VOL. XLI. JUNE 15, 1913, NO. 12.

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Gleanings in Bee Culture

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VOL. XLI. JUNE 15, 1913 NO. 12

Editorial

The reader will be interested in the "good-natured scrap" between the editor and Dr. Miller that takes place in his regular department, Stray Straws, on the subject of painted versus unpainted hives.

A NEW BOOK ON APICULTURE FROM AUSTRALIA.

"Australian Bee Lore and Bee Culture," by Albert Gale, late Bee Expert and Lecturer on Apiculture for the New South Wales Government, has come to our desk. It contains about 300 pages the size of this, taking up the whole subject of bee culture from beginning to end as it applies to New South Wales. It gives particular attention to the influence of bees on crops and the color of flowers and their influence on bee life. The book is not wholly new, but, rather, a collection of the author's published articles, or those that appeared from time to time in the New South Wales *Agricultural Gazette*. Mr. Gale is one of our occasional contributors, and needs no introduction to our readers.

A CORRECTION; DUAL INTRODUCTION.

One of our queen-breeders, Mr. Mell Pritchard, at our basswood apiary, calls attention to a misleading statement of ours at the bottom of the first column on page 372—at least *he* misread it, and we suppose others did. He understands that we cage all the queens at the same operation, and explains that we could not do this without having the last queen mated too old to be good for any thing. What we meant to say was that we might have two or more queens in the hive at the same time, but caged on different days. The reader will see that the language on page 372 has a double meaning. Mr. Pritchard calls further attention to the fact that we do not have more than two queens in the hive at a time, and then adds:

> We do practice precaging about two or three days before the queens are expected to be laying, with good results, but we never cage two or more virgins at the same time.

HONEY-CROP CONDITIONS; CLOVER PROSPECTS.

The outlook for alsike and white clover in the central Northern States was never better—that is to say, there is a great profusion of plants and of bloom. If other conditions shall be right we shall have a fine flow. Reports from the clover districts in the East are not quite so good. Experience has taught us that there may be times when we have plenty of bloom but no nectar. But reports in from the clover regions south of us show that the flow has been excellent. One man, one of the largest producers in the country, states that it has been the greatest clover flow he has known for many years.

During the last 48 hours we have had a cold spell—cold enough to make us fear a frost. To-day, June 9, the weather is so cold that an overcoat seems comfortable; yet, remarkable to relate, our bees are storing honey.

Further reports from California show almost a complete failure of the sage crop, although experience has taught us that when we have such failures there may be some sage honey, and the big buyers will be sure to find it.

It would be premature at this time to predict a big yield of clover honey; but if we have the right weather conditions we shall have one of the finest yields we have had for many years.

Our subscribers in the mean time are requested to send in *brief* postal card reports of honey-crop conditions and prospects. Do not write more than one or two sentences, as otherwise we can not tabulate them. These reports are important as they have a strong bearing on prices.

GLUCOSE IN "NEW ORLEANS MOLASSES."

Glucose continues to be a favorite form of adulterant for syrup, as shown by "Notice of Judgment," No. 1835, from the Secretary's office of the United States Department of Agriculture. (In all such literature we notice that the product is called by its real name, that is, *glucose*, instead of the nicer-sounding assumed name, *corn syrup*.)

Four and a half barrels of molasses were seized and condemned because of being labeled in large type "Dixie New Orleans Molasses," and in small type, "Containing Sulphur Dioxide—Compound molasses and corn syrup." In the investigation it was proven that the product was not New Orleans molasses, nor was it entitled to be so called, but was a mixture containing a certain quantity of glucose. Misbranding was alleged because the product was an imitation of, and offered for sale under, the distinctive name of another article of food.

We have always supposed New Orleans molasses to be a product so cheap that no one could afford to adulterate it; but it seems from the above that glucose, unfortunately allowed to be called corn syrup, is such a cheap material that it may be profitably used as an adulterant in New Orleans molasses.

REPORT OF ILLINOIS STATE BEE CONVENTION.

The Twelfth Annual Report of the Illinois State Beekeepers' Association, containing complete stenographic record of the entire proceedings, is before us. It contains 170 pages of closely printed matter of discussions in what appears to have been a good convention. This is followed by a brief report of the National convention.

This is the only report of any convention, National or otherwise, so far as we know, that is cloth-bound. We are advised that a copy will be sent to any beekeeper, whether from Illinois or any other State, who pays an annual fee of $1.50, either to the Secretary of the Illinois State Beekeepers' Association, to E. B. Tyrrell, 214 Hammond Building, Detroit, or to the Secretary, James A. Stone, of the Illinois State Beekeepers' Association, Springfield, Ill.

The volume also contains the Second Annual Report of the State Inspectors, by A. L. Kildow, Putnam, Ill. This is a complete treatise on foul brood with a report of the number of apiaries visited, and a list of the counties where disease was found.

THE BAN ON BEET SUGAR FOREVER REMOVED.

In times past (and almost up to times present) a good deal of space in the bee journals has been taken up in argument for and against the use of beet sugar for feeding bees. We ourselves have been somewhat undecided at times, although so far as our own tests are concerned we have never been able to detect any bad effects whatsoever, provided the refined sugar is used.

Last spring one of our subscribers, Mr. E. L. Hoffman, of Janesville, Minn., knowing the difference of opinion in regard to beet sugar, wrote to the University Farm at St. Paul, of the University of Minnesota. The reply which he received is so interesting and convincing that we are glad to place it before our readers at this time.

THE UNIVERSITY OF MINNESOTA.
DEPARTMENT OF AGRICULTURE,
UNIVERSTIY FARM, ST. PAUL.
Division of Agricultural
Chemistry and Soils.

Mr. E. L. Hofmann:—I am in receipt of your letter with regard to beet and cane sugars. I would say that, chemically, there is absolutely no difference between these two products at the present time. A number of years ago, when the beet-sugar industry was fairly new in this country, the product of the beet-sugar refineries contained a considerable amount of a substance known as betain, which apparently induced fermentation and aroused considerable prejudice aginst the use of this sugar. Under the present conditions none of this can be detected, and I am surprised that you found any difference in the two for your purpose, as both the cane and the beet sugar of the better grades are practically 99½ per cent pure.

We could readily determine for you the purity of the sample of sugar sweepings, but we could not determine whether it was derived from beet or cane. The station makes no charge for any of its analytical work. R. M. West, Acting Chief.

St. Paul, Minn., March 29.

This statement, coming as it does from the Division of Agricultural Chemistry in one of our great universities, certainly can not be biased, and it seems to us that the question as to the value of beet sugar for bees should be settled now once for all.

DER BIEN UND SEINE ZUCHT (THE BEE AND ITS CULTURE).

Those who can avail themselves of German literature, and are interested in bees, will be interested in the book named above, It was written by F. Gerstung, pastor in Ossmanstedt, Germany. Mr. Gerstung is one of the most prominent beemen in Europe, and one who has been often quoted by Dr. Miller in Stray Straws in these pages. It is easy to say that the book has 474 pages besides a copious index, and that it contains a wealth of fine illustrations; but a thorough review of it would be almost equal to the task of writing another book as large as this.

The work in question is not only German in language but in its teachings. So far as we can observe, it is confined exclusively to German methods, with the exception of considerable space to rearing queens artificially. In this the author gives full credit to W. H. Laws, of Beeville, Texas, and to the publishers of this journal. Aside from this, however, it contains no reference to American inventions except to give the size of the Quinby and Langstroth frames. Still, to describe apiculture outside of Germany would have been foreign to the main object of the writer besides making an already large book too voluminous.

In looking through this book the American beekeeper will be struck by the great number of beautiful bee-houses, pavilons, sheds, summer-houses, etc., used in Germany, where space is so limited and lumber still more so. The American beekeeper would consider the cost of these all out of proportion to their value as bee-protectors; but as the German attaches considerable value to ornament for its own sake, perhaps the use of such buildings is warranted by the beautiful appearance they present.

Much space is given in this volume to the depredations of the wax-moth. The many illustrations show plainly what a terrible scourge the moth is there, while in this country it has ceased to cut any figure where the Italian bee has been introduced. The Germans still use, as a general thing, the old black or German brown bee.

The process of egg-laying, both drone and worker, is one of the most striking features of this book, and is splendidly illustrated by half-tones photographed from the combs direct.

On the subject of foul brood thirteen pages are devoted, describing it minutely, but not illustrating it. Its method of treatment is very complete.

We feel sure that this, the fourth enlarged and amended edition of this already celebrated work, will be of permanent value to the readers for whom it was mainly designed, and it will also be a literary monument to the skill and industry of the distinguished author.

ANOTHER CASE WHERE BEES HAVE BEEN KILLED BY SPRAYING WHILE FRUIT-TREES WERE IN BLOOM.

We have had a good many reports showing how bees have been killed by hundreds and thousands by the ignorant folly of some fruit-growers who spray trees while in full bloom. The following letter received from the New Hampshire Agricultural Experiment Station, written by the assistant horticulturist, Mr. W. H. Wolff, is pretty convincing proof. As Mr. Wolff is a scientific man, the presumption is that he would not be mistaken.

The beekeepers of this State are experiencing considerable trouble from trees being sprayed while they are in bloom. From several towns I learn of this having been done this year and last, and the few colonies we have here at the College under my care have had their strength considerably reduced owing to a commercial sprayer having sprayed 500 trees within half a mile of us while the trees were in full bloom.

The first knowledge I had of this trouble was on the morning of May 17, when, on looking at my bees, I noticed the ground in front of the hive was covered wth many hundreds, dead and dying. This condition of affairs has been going on for the past three days, until now when it has appreciably decreased the working force of each hive. I should like to know what suggestions the National Beekeepers' Association has to offer when bees are being killed off in this way. Also whether it is possible to frame a law which would protect them against the work of careless and ignorant people.

I have collected about a pint of bees from the college hives and those of a neighbor, and have dried these out. It may be that you may like to have these to analyze for traces of arsenic so as to get more exact data on killing bees by spraying the trees while in bloom.

Durham, N. H., May 22. W. H. Wolff.

Almost in the same mail another letter came along the same lines. It reads:

I see you want reports on spraying fruit-trees in bloom. They are spraying trees around here that are in bloom. Parties take contracts, and they sprav through blooming time, paying no attention to the beekeeper's interests. Two years ago I had 40 stands of bees ruined by spraying in bloom. Two years ago there were 100 stands of bees in my community. Now there are by actual count only 25 stands. They spray with arsenate of lead and Paris green, yet they say it does not kill the bees. Even neighbors spray this year in bloom. Why not? The law says they may do so.

McGuffey, Ohio, May 11. H. McBride.

In this connection it is proper to quote the whole of what Mr. Frank Rauchfuss says in the last issue of the *American Bee Journal*, page 151. Here is what he says:

Prof. Gillette says: "When the codling moth begins to appear about the time of full bloom, they do not begin to lay eggs until the majority of the apples in the orchard are one-half of an inch in diameter; when they are ¾ of an inch they are laid freely. As soon as the little apples lose their fuzzy coverings the moths lay their eggs very largely upon the cheek of the apple, but *never in the blossom*. Later they find their hiding place in the blossom end of the apple. After the blossoms have fallen and the apples have attained a little size, *is the time to spray, and not before.*"

Prof. Gillette, who wrote the above, has raised these moths in great numbers at the Government Experimental Station, and is considered the best authority on this subject in the West.

In Bulletin No. 89, from the State of New York Experiment Station, we find the following statement: "The trees should not be sprayed while in bloom, for the spray may injure the delicate part of the flower." The Missouri State Bulletin No. 36 says: "Never spray a fruit tree while in bloom. You not only injure the delicate stigma and prevent pollenization, but you are in danger of killing bees." Bees aid largely in pollenizing all fruit trees, and with other insect life are of great service to the fruit growers at this time of the year.

Green's *Fruit Grower* says: "It is a positive injury to spray for the codling moth when the trees are in bloom." The Vermont Station prints the fol lowing advice: "Spraying when trees are in bloom is entirely useless; it is a waste of time and spraying material." The United States Agricultural Department at Washington sends out the following: "Pomologists may well join hands demanding and securing a law making it a grave misdemeanor to spray trees while they are in full bloom."

Canada has a strict law against spraying while fruit trees are in bloom. Several of our States have passed similar laws.

Spray only when blossoms have fallen. Those trees that have blossoms on them at the time of the first spraying should not be sprayed until the time of the second spraying some 12 or 14 days later.

Stray Straws

Dr. C. C. Miller, Marengo, Ill.

Dr. A. F. Bonney, *American Bee Journal,* 61, brings valuable information as to lime from J. M. Francis, a practical chemist who is also an enthusiastic beekeeper. Ordinary lime contains 10 to 25 per cent of impurities, and 100 pounds of it will absorb about 24 pints of water and 62½ pounds of carbonic acid. But after it is slaked, and in powder, it will not absorb another drop of moisture, although it will continue for some time to take up carbonic acid. So lime in bee-cellars has its time-limit.

A. I. Root, you object to paying 25 or 50 cts. or $1.00 apiece for day-old chickens, but think it good sense and real science to pay $5.00 or more for a rooster of the right stock. But what if a day-old chick turns out to be a $5.00 rooster? I think you advise—and the advice is good—to buy several dollar queens in the expectation that one or more of them will turn out to be as good as a tested queen. Why not the same rule with chickens? If the day-old chick is of the same stock as the $5.00 rooster—well, why not?

I said, p. 248, that it was not so well known that frequent changes of temperature favor granulation, and you reply, Mr. Editor, that that's just what A B C and X Y Z teaches. Yes; but are there not a lot of readers of Gleanings who have no A B C? And that gives me an opportunity to say to all such that they're making a big mistake. If you can't have both, by all means stop Gleanings for a year or two and get the book. [This matter of frequent changes of temperature favoring the granulation of honey has been spoken of several times in Gleanings. For example, turn to page 135, Gleanings for 1910. Some five or six years ago it was mentioned much more frequently than of late years.—Ed.]

I have just read the report of Illinois Association, which contains a report of the last National meeting. In the Secretary's report, which previously appeared in the *Review,* exception is taken to the action of Mr. France in refusing to allow the League fund to be used for any thing but advertising. It seems to me Secretary Tyrrell can hardly be familiar with the full history of the fund. When it was offered to the National, strenuous effort was made to have it given without any string to it, and it was just as strenuously insisted by the League that the National use it solely for advertising or not get it at all. The National received the fund on that basis, and it would be a breach of good faith now to divert the fund to any other purpose. Nor is such action at all justified by the consent of all but one of those who contributed more than $25.00 each. If all should consent except a single one who had contributed 50 cents, that one would have a right to protest that it would be wrong to divert the money to any other use.

Mr. France would have less ground to stand upon if it were impossible to carry out the original intention. But at that same meeting at Cincinnati, it was practically resolved that the National should do the very thing that the League fund was intended to pay for. Mr. France is the only living member of the committee appointed to spend the money. If two such men as he and Secretary Tyrrell were appointed a committee, with free hand to use that fund as originally intended, it seems it might do more good than used in any other way. Why not? [Excellent suggestion! It seems as if this might be the solution of an unpleasant problem. Gleanings respectfully refers it to the parties interested. If Mr. Tyrrell and Mr. France can agree on a propaganda of advertising, we see no reason why the fund could not be used. Judicious advertising in the magazines, and perhaps the newspapers, showing the real value of honey as a food, would benefit the industry at large.—Ed.]

That's right, Mr. Editor; "jab" when you get the chance, p. 328. You ask if I'm *sure* it's economy not to paint hives. No; the list of things I'm not sure about is about as big as the list of things I don't know. You want to know whether unpainted hives don't gap at the joints sooner than painted ones. I don't know. I haven't kept any till they gapped. I've kept them only since the first dovetailed hives were made, and they don't gap yet. How soon do your painted hives gap? You ask about covers twisting and checking. Now look here. Did you ever know me to advocate unpainted wooden covers? But with a very few exceptions my covers are covered with something better than paint. Some of them are covered with tin that's painted—at least it was painted—but the majority are covered with zinc, which doesn't need paint. You have never made better covers. You ask if it's economy to leave houses unpainted. I don't know. Depends on the cost of new siding when the old wears out, and the cost of keeping the houses painted during the same time. Now that we've discussed economy, perhaps,

enough, it might not be out of place to say that it might trouble you to prove that I ever said it was economy to leave off paint. It was *you* that gave economy as my reason —not the first time I've been libeled. But if you go to hunting up proof I'll help you enough to refer you to "Fifty Years among the Bees," p. 80, where I say, "I suppose they would last longer if painted, but hardly enough to pay for the paint." My real reasons still remain: Doolittle and the health of the bees.

I've just been down through the apiary, and I didn't find a single hive with gapping corners, nor even with the least inclination toward it. I mention this, not because of its bearing on the above coutroversy, but because, years ago, so much was said against dovetailed hives because the corners would not stand. If mine are still perfect after all these years without paint, it hardly seems a valid objection. [We accept your correction in regard to the covers. You remind us that you have always advocated the painting of these when made of wood. We admit that the dovetailed hives will not gap at the corners, even if unpainted; but a large number of people use hives not lock-cornered nor dovetailed—some factory-made and many home-made. Shall these people be encouraged to use paint? and is it not true, doctor, that, before you began using dovetailed hives, your old unpainted hives that were not dovetailed, gapped at the corners? If so, was it because of a lack of paint? But aside from the economic side of the preservation of the hives, is it not true that an unpainted hive assumes a gray-black hue—a color that becomes almost pure black? Such hives out in the sun will often drive the bees out of them, and stop honey-gathering altogether. Some years ago, as you may recall, we tested out on a hot sunny day the external temperature of the wood of old unpainted hives, some painted venetian red, and some painted with two coats of white lead. The day selected for the test was very warm—between 95 and 100 in the shade. We placed the bare hand on the white painted hives, and found the surface was merely warm, while the surfaces of the dark hives were almost hot enough to blister the hand. Colonies of the same strength were contentedly working in the hives painted white, but were clustered out badly in front of the dark ones. We can not now recall the difference in temperature, but it was considerable.

It may be argued that an unpainted hive should be kept in the shade; but does not experience prove that shade is detrimental to the early spring development of a colony? While we have not definite figures to show, is it not also true that, other things being equal, a colony in a painted hive out in the open will work more hours in the 24 than one in an unpainted hive? If the latter were kept in the shade, the variation might not be great; but would that colony in the shade be as far along as one out in the open where the sun could get it? If we remember correctly, Mr. E. W. Alexander and other prominent beekeepers have made the statement that a shaded colony will not fly out as early in the morning nor be as strong at the beginning of the honey-flow as the one out in the open.

This is a fruitful subject for discussion. It is not a question whether Dr. Miller, the editor, or anybody else is right; but it is a question for the beekeeper to solve, whether there is economy in the use of paint, in the greater durability and the condition of the colony for honey-gathering at the beginning of the honey-flow. Dr. Miller and the editor are both willing to be "jabbed," providing the truth can be brought out.

That Dr. Miller might have the "last say" or last "jab" we submitted the foregoing to him, and here is his reply.—Ed.]

I've read over what you say more than once, Mr. Editor, have studied it carefully to find a weak spot where I could give you a jab, and find you so strongly entrenched that I feel a good bit like surrendering unconditionally. Yet I have something of a fasthold in the winter welfare of the bees. As my cellar is now warmed, I think it would make little difference—perhaps none —but before the furnace was in it I think damp and mold could be so much worse in the painted hives in winter as to make up for the advantages of paint in summer. I may also offer that in my dovetailed hives that have failed through age the first failure is nearly always at the edges, inside rather than outside, where no paint is applied in painted hives.

In my possible downfall I may take a grim satisfaction in reminding you that you failed to give one argument on your side. You say bees don't begin work so early in the morning if their hives are in the shade; but you failed to say that bees in the shade stop work earlier in the evening. I had marked proof of that when in former years bees were brought out of the cellar and the bees of the out-apiaries were massed temporarily northeast of the shop. In the evening there was a plain line of demarcation, each colony ceasing its flight just as soon as it came into shadow. If you had any gratitude about you, you'd give me a nickel for furnishing this missing argument.

SIFTINGS

J. E. CRANE, Middlebury, Vt.

Wesley Foster's advice about tinkering with American foul brood is thoroughly sound, and every young or inexperienced beekeeper would do well to heed his advice. See page 142, March 1.

* * *

That method of ridding cappings of honey by centrifugal motion, by Mr. D. R. Hardy, and described by Mr. Holtermann, page 188, March 15, would seem to open the way to rid the cappings of most of the honey that sticks to them. It will be remembered that this is the way sugar is treated in refineries to rid it of all superfluous molasses or syrup.

* * *

A good deal has been written of late about bee-veils. I have many times wondered if we could not have a special kind of wire cloth for this special purpose, with meshes say ⅛ inch instead of 1-12 or 1-14 as at present. This would reduce the obstruction to vision from a third to nearly a half, and give a freer circulation of air. [We already have such a wire cloth. The wires are ⅛ inch apart.—ED.]

* * *

P. C. Chadwick makes a good point on p. 140, March 1, where he concludes that pollen is of more importance in stimulating bees to breed in springtime than the feeding of thin liquid sweet where they have enough honey stored in the hive. Last March, on the east coast of Florida bees built up readily, although they gathered very little or no nectar, and were growing lighter all the time; but they found an abundance of pollen. "Pollen is a greater aid in that direction than additional stores," he says, and he is right.

* * *

It seems to me that the March 1st issue was, on many accounts, one of the most interesting numbers I have seen in a long time; and any one who shall say hereafter that women can not be successful beekeepers may be counted as not up to modern ways of business. I doubt if an equal number of articles written by men twenty or twenty-five years ago were more scientific or up to the best methods now known than these written by women from their own experience. One can not wonder, when he sees how well women have come to understand and to practice the art of beekeeping, whether the men are not going to turn this work over to them, as they have to so great an extent the rearing of poultry. However that may be, I feel that this number marks a new era in beekeeping, or at least one not realized before.

* * *

THE OLD QUESTION OF GRADING COMB HONEY.

In the report of the National Beekeepers' Association at Cincinnati I notice that the question of grading was a live one. Evidently this question has never been settled right or it would not be bobbing up continually. Now it seems to me that it would be well to mention here a few facts or what appears to be such. The first I would speak of is that, the closer the lines of grading are drawn, the more beekeepers are turning their attention to extracting their honey, where grading is not so difficult. Mr. Muth would have only two grades—fancy and No. 1. But how much profit will it be to the beekeeper who produces comb honey when he finds he can not sell more than half his crop because it will not come up to these grades? We are not surprised to learn that there is a scarcity of comb honey on the markets. It is easy to see that it would be more convenient for the honey merchant, like Mr. Muth, to have but two grades of honey. It would be even better for the beekeeper to have only one; but, taking the country as a whole, the bees do not all put up honey that way. I think we might make twenty grades quite distinct and easily recognized. These would all merge from one into another so as to be almost imperceptible in some cases, but yet each as a class would be quite distinct from the others.

Now the question is, How can this great variety be classified so as to suit best the trade and consumers? Shall the beekeeper sort out a little of the best, and call it "fancy," and a larger amount and call it No. 1, and melt up the rest? or shall he sort it out so the cases he puts up can have some one, two, or three words that will accurately describe it, each case being of a kind? I believe it is the business (I almost said duty) of the merchant to find a market for the off grades of honey as well as the "fancy" and No. 1. When the oil-refineries found they had an immense amount of gasoline, of so little value that they let it run to waste, they set men to inventing stoves that would consume it, and then engines that would use it for power, until today the demand is such as to bring great profits to refineries. Now, I believe there could be an opening made, or a demand at a fair price for all our grades of honey that are fit to put up, and yet that will not grade No. 1 or "fancy."

Beekeeping in the Southwest

Louis Scholl, New Braunfels, Texas.

A NUMBER OF QUESTIONS ANSWERED.

Instead of reproducing each inquiry and answering each question separately, which would take more space and yet not give any more information, I am incorporating all the answers into a short article. These inquiries, from four different persons, are all on the subject of bulk-comb-honey production, some of the questions being identical, while others are entirely different. Many inquiries are made for a booklet on our method of management, the hives we use, and on the matter of using the divisible-brood-chamber hives, and the production of bulk comb honey. To this we shall have to reply that we have no literature on any of these subjects other than what the bee journals have so kindly given during a period of fifteen years or more, although we have been requested several times to have such booklets published for the benefit of those who are seeking information. Our time has been so much taken up that we have not even given the matter serious thought, and consequently do not know whether it would be advisable for us to do so.

THE HIVE WE PREFER.

The most frequently asked question is in regard to our preference of the hive to use in connection with our methods of management, especially for bulk-comb-honey production. It is already well known that our long years of experience with different hives has given us an opportunity to test the divisible-brood-chamber hives to a finish; and since we have had the best results with them we prefer them. They are composed of shallow supers known as the Ideal shallow extracting-supers, of the ten-frame size, with shallow Hoffman frames, 5⅜ inches deep, as listed in the supply-dealers' catalogs. Our frame has a heavier top-bar, however, ½ inch thick. It is narrower also than the regularly made top-bar, or ⅞ inch wide. There is no comb-guide or groove for the foundation, as this is fastened with melted beeswax.

BURR-COMBS

The foundation is used in full sheets, of the thin-super grade, and without wires always. This grade of foundation is just right, and heavy enough so that brood foundation is not necessary in these shallow frames. The same supers or *shallow stories,* as they ought to be called, are used the same way throughout for brood-chamber and supers—a great advantage on account of the interchangeability. There is no trouble about too many burr-combs between the several stories, or the frames of one story and those of another, in our manipulation of this kind of hive. It seems that beekeepers often allow their colonies to become too crowded, and hence experience this trouble. Colonies always allowed room as needed will have little occasion to build between the bottoms and tops of frames of one story and another. Proper manipulation of the several stories, and interchanging with another from below to above, and *vice versa,* which is necessary to accomplish the best results, never allows the stories to remain so long in the same position as to encourage serious burr-comb buildings. Our narrow, thick top-bar is no more, if as much, subject to cause burr-comb building than the thinner and wider top-bars regularly furnished. The latter are more subject to sagging, however, and often there are more burr-combs, as a consequence.

THE VALUE OF SHALLOW EXTRACTING-SUPERS.

With several hundred shallow extracting-supers on hand, the beekeeper has a valuable investment, and is better prepared for bulk-comb-honey production than if he did not have them. By no means would I cut out these valuable combs and melt them into wax, having to fill the frames with full sheets of foundation for bulk comb honey. These supers should be placed on the regular brood-chambers early in the spring. First, to allow more breeding room for the colony, meaning a stronger colony for the honey-flow later; and, second, it furnishes a place for the bees to store the first scattering honey that comes in before the main honey-flow begins. We use these supers, one over each brood-chamber proper during the entire winter. In fact, this super is, with us, part of the brood-chamber until the honey-flow begins. Just before the honey-flow comes on, this super or upper story is raised up, and the new supers with frames filled full of foundation are slipped in between it and the brood-chamber. Tiering up as with section honey is then continued, and this is one of the best ways to induce bees to begin work, and work with great energy in the supers immediately upon giving them. The extracted honey out of the upper or first super with the shallow extracting-combs, is used for putting up the bulk comb honey, hence is that much profit. The same super is again used after the main honey-flow to catch that honey, which would not be enough to warrant putting on another comb-honey super, and likewise goes for extracted honey, as a great deal of it is needed to put up a good crop of the comb honey.

Beekeeping in California

P. C. Chadwick, Redlands, Cal.

PROBABLY SAC BROOD INSTEAD OF BLACK BROOD.

I submit the following extract from a letter just received from Mr. J. D. Bixby:

Your Mr. Meeker, County Inspector, is laboring under some misapprehension as to *black* brood. Several parties have been down, and others have written me, and I have also seen fresh samples from four hives in two apiaries, which he had pronounced black brood, which are distinctly *not*, but are unquestionably a bad form of pickled brood or sac brood as the Department calls it. The same also prevails in parts of Riverside Co., and about Lordsburg and Pomona. I had a man here from Pomona yesterday with samples which seem to be worst where the honey-flow has been light.

It is some relief to hear that there is even a possibility of our not being so close to the disease as has been reported. Mr. Bixby is a man of wide experience with this disease, and it is very likely that he is correct, as Mr. Meeker has not had to combat the disease, and has not lived where it has prevailed.

* * *

WHAT TO DO FROM NOW ON.

The problem from now on that will absorb the mind of the California beekeeper will be how to manage the bees with the least possible expense, and keep them in the best possible condition. Some will have the foul-brood question to give them additional concern. Near the coast some will doubtless turn toward the bean-fields for relief, while in the foot-hill region there are those who can go higher in the mountains for relief, the main object being to keep the bees in good condition in anticipation of a honey-flow next season. Nine years ago my uncle and I hauled five loads of bees into the Julian Mountains (a distance of ninety miles) to summer them. They were not returned until the following April, but came back in fine condition, and averaged 240 pounds per colony for the season. There are many places nearer that I believe would be just as good. But we can not all go. In fact, the great majority of us must stay where we are and work out our own salvation.

In the natural course of events eight months must pass before we can expect relief, four of which will be during the hot summer. Then we may have a repetition of the season of 1905, with an open wet winter allowing the weak colonies to build up rapidly, to our great delight.

Honey will doubtless be sold at a good price, and there will be great temptation to take every thing found above the brood-chamber. In fact, it is now bringing 10 cts. a pound for white. The feeding-back of sugar is the plan of those who take all in sight. This I believe to be false economy, for it will not be possible to secure the same results from a pound of sugar that one would get from a pound of sealed honey. Then, again, sugar may not be as cheap later as at the present time, for it is sure to advance during the fruit-canning season, and may not return to its present level. Even if it should, it is not the equal of honey for breeding purposes.

Many have already extracted all old honey from their supers to prevent it from blending the new crop into a darker grade. This must be fed back or sugar used in its stead.

I have been so doubtful of the season from the beginning that I removed the old honey, but did not extract it, and have now returned it to the hives, placing two supers over the strongest colonies with an excluder below. It will be left there until the weaker colonies need it, then it will be given to them in the comb. I prefer to carry the combs over by storing them on the strongest colonies, for the reason that they are better able to protect it from moth and robber bees where it contains honey. I never make a practice of sulphuring combs for the purpose of keeping moths out if there are bees sufficient in the yard to protect them through the summer months. They may be removed late in the fall and stored until needed in the spring, and thus avoid the disagreeable odor of sulphur.

Usually breeding will not entirely cease if there are plenty of stores on the hive, and in consequence it is not best to let a colony get too low in stores, but to take combs from the stronger ones and give to the weaker ones before they begin to be poverty-stricken, and thus encourage normal breeding. The season may not be as bad as I anticipate; but it can not be very good for breeding purposes after the hot weather sets in, for what little green vegetation there is in the foot-hills will soon be parched and dry from the hot summer sun, and the chances are that in many sections of the foot-hill region we shall find our colonies very much run down by autumn, for many are none too strong now.

Have courage. This is not the first period of the kind California has seen, and will not be the last; but there will be good periods between, and some day we shall realize more for our honey crop than we could sell the bees for at the present time, with interest at 6 per cent added. It is no time to get the selling fever; but in my opinion it is the very best time to buy.

Conversations with Doolittle

At Borodino, New York.

WAX SECRETION AND COMB-BUILDING.

"When may we expect that the bees will secrete wax and begin building comb?"

"Among some of my early recollections is this from L. L. Langstroth's work on bees: 'It is an interesting fact which hitherto seems to have escaped notice, that honey-gathering and comb-building go on simultaneously; so that, when one stops, the other stops also. As soon as the honey harvest begins to fail, so that consumption is in advance of production, the bees cease building new comb, even though large portions of the hive are unfilled. When honey no longer abounds in the fields, it is wisely ordered that they should not consume, in comb-building, the treasures for winter use.' In addition to this I would say that, under the same circumstances, the higher the temperature up to 90 or 95 degrees in the shade, the better results. This is in harmony with all general affairs as they naturally take place. Warm weather being necessary for the secretion of nectar, it is but natural that the bees should go out in search of it, and with the gathering of more honey than is needed for the economy of brood-rearing, wax secretion invariably takes place when more room is needed.

"What is the estimate in pounds of honey necessary to make one pound of wax?"

"This has been variously estimated at from six to twenty pounds. I think it was Huber who first gave the estimate of twenty pounds; but, if I am right, his statement was made after confining the bees and feeding them honey. This, of course, put the colony out of a normal condition, under which circumstances more honey would naturally be consumed owing to the bees becoming agitated through their struggle for freedom. Others, who estimate as low as six pounds, think that pollen helps in the secretion of wax, and a high temperature is considered an important factor, on the principle that it seems to take much less food for hogs to put on fat in warm weather than in cold. Others think that, in addition to temperature, the freedom from vigorous work in the fields has very much to do with the matter. With a partially enforced idleness bees will secrete wax and build comb very fast. There is hardly an apiarist in the world who has not noticed with what alacrity comb-building is carried on by the newly hived swarm previous to extended brood-rearing. With a high temperature and almost perfect immunity from other duties, wax secretion is carried on most economically."

"With a hive partially or fully filled with comb, when does wax secretion begin?"

"Generally, not until all available cells are filled to an extent consistent with the evaporation of moisture contained in the nectar brought in from the fields by the field bees. Up to this time all repair work about the hive and comb requiring wax is made at the expense of other portions of the comb already built, as is invariably indicated by the color. The beekeeper who has not noticed this is an exception and not the rule. Put an empty frame having only a starter down at the side of the outside comb of the brood next to the brood-nest, and see how it will be filled with comb of all shades and colors. Then look at queen-cups and queen-cells as they are being built. These always correspond in shade with the comb upon which they are constructed.

"It is rightly claimed that there are times when *wax secretion is imperative.* Years ago Prof. Cook found that, during the height of a profuse nectar flow, wax scales could be found upon the field bees which were visiting the flowers. With plenty of empty cells comb extension is unnecessary, either for breeding purposes or the storage of honey. But with a good nectar flow, and all available cells filled, the field bees transfer their loads to the comb-builders and nurse bees, which, being unable to disgorge themselves, are compelled to secrete wax the same as a new swarm does when without comb. Under both conditions comb extension is desired. With the swarm this desire can be satisfied, but not with the other. Close observers have noticed that, toward the close of a day when the nectar secretion has been exceptionally good, so that the nurse and comb-building bees are gorged almost to bursting, the old field bees have been compelled to keep their loads, and will cluster out on the hive with plenty of nectar still inviting them to a sumptuous feast. At such times, after 24 hours the old fielders can be found bearing wax scales, even though these scales are generally confined to the comb-building bees under most circumstances. Hence it is easy to see that, with such an exceptionally good flow of nectar, there must come a waste of wax with a hive and supers filled with fully occupied combs; and under such circumstances, where foundation is given, the sheets are not disturbed at all. Then it is that the bees build combs by adding their wax to the foundation, thus giving a heavy base or midrib to section honey."

General Correspondence

A NEW OLD TREATMENT FOR AMERICAN OR EUROPEAN FOUL BROOD

Trapping the Bees Away from the Old Combs by Means of a Bee-escape

BY W. W. CASE

[Last winter we attended a convention of the Pennsylvania State Beekeepers' Association that met at Harrisburg. Among others, we had the pleasure of meeting Mr. W. W. Case, whom we had long known by correspondence. In a paper he read in that convention Mr. Case gave this method of treatment; and as he and his friends have had such excellent success with it, we asked him to prepare a special article with drawings for GLEANINGS, describing the method, and here it is.—ED.]

After more than twenty years of contact with and study of both American and European foul brood, I have evolved, and am at last ready to give to all beedom, a safe and sane treatment that renders the terrors of foul brood one of the least problems in successful apiculture—far less than that of always successfully wintering—a treatment that will not interfere with the work of apiary inspectors in the least, but will prove a boon in solving their problems. In fact, it already has the unqualified indorsement of inspectors in Pennsylvania and New Jersey; and while I have bred by selection a strain of Italians absolutely immune to European foul brood, the treatment for infected colonies is the same for both kinds, and is based on the five following principles worked out and successfully proven in my own apiary, while surrounded, even today, by the most rabid infection of both kinds of disease.

FIVE PRINCIPLES.

1. The adult bee does not carry infection while digesting infected honey.

2. Any infected honey stored in the combs during treatment will always cause a recurrence of diseased conditions.

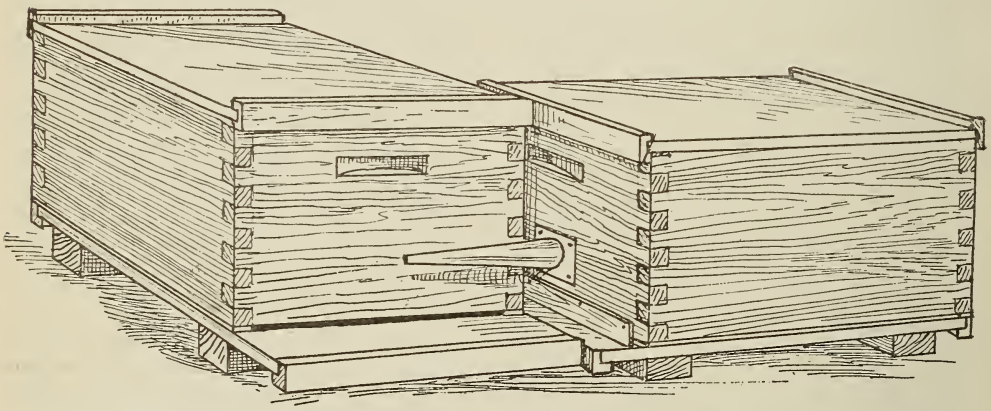
3. Normally, bees always leave the hive with empty honey-sacs.

4. Bees on being disturbed in the hive always give more or less honey to their fellows, which, after the disturbance is over, is placed by the field workers in their handiest cells before they again go to the fields.

5. At the commencement of treatment there must be no comb in which honey may be stored.

From the above five principles I have been able to evolve the following treatment, which is just as safe in the hands of the amateur as of the expert, and without the loss of colony, brood, honey crop, danger from robbing, or spreading the infection in any way. It applies equally well to both forms of disease.

Infected colonies in early spring may, if not too far advanced in a diseased condition, cast normal swarms, especially if confined to the hive-body, in which case the parent hive should be set to one side a few inches, and the swarm hived on full sheets of foundation on the old stand, after which remove all queen-cells from the hive which cast the swarm, return the combs, and close the hive bee-tight. Next bore a one-inch hole in the end of the hive, over which nail a one-inch tin-pipe bee-escape about six inches long, and tapering to a point just large enough for a single bee (including drones) to pass out at a time, and place the hive in position shown in the cut with the small end of the tube about two inches in front of and above the entrance. It is



W. W. Case's method of allowing the bees to pass naturally and quietly away from foul-broody combs through a tube bee-escape.

imperative that the infected colony hived on foundation (or starters) on the old stand be not disturbed under four (and, better still, five) full days; for when the bees start to the fields after hiving, the wax-workers will take all the infected honey brought from the old hive, and, if left absolutely alone, will digest it all in forming wax; but if disturbed before four days so as to exchange honey, they will, before again going to the fields, place the honey, now probably infected, in the first cell the bees have drawn, instead of giving it to the wax-workers, when it will be fed to the first brood that hatches, thus at once reinfecting the colony. Should it become imperative, from any cause, to break the wax cluster before the fifth day, all comb built must be removed, and fresh foundation given. In the course of about four weeks all the brood in the hive with the pipe escape will have hatched and passed out, and united with the parent colony; and as all have left the hive with empty honey-sacs there is absolutely no danger of their carrying the infection. It is, perhaps, needless to say that the piped hive must in no wise be disturbed until the last bee has hatched and passed out, when it can be removed to a place of safety, and the wax rendered at leisure.

Colonies that do not swarm can be shaken on foundation in a clean hive on the old stand, the hive sealed bee-tight, and piped out as before. In shaking, it is best to leave enough bees to care for the unsealed brood, as they will pass out and unite with the treated colony in a short time any way.

Colonies in box hives, whether diseased or healthy, can be drummed out and transferred with the pipe, with no danger of robbing, infection, loss of brood, nor drone brood to dispose of. Neither does it necessitate smashed-up hives and the general muss accompanying transferring, and the wax rendered by a good press will far more than pay for the foundation used.

I have still to learn of a single failure in the cure of foul brood by the above method absolutely carried out, either in my own apiary or in those of others who have used the method.

Frenchtown, N. J.

[This plan is not new, neither is it old. The basic principle was given by Mr. M. M. Baldridge, of Illinois, in 1894; but Mr. Case's modification of it is new. The old original Baldridge treatment was much the same as that given by our correspondent above, with this difference: Mr. Baldridge put a new clean hive on the old stand. In this hive he placed a frame of brood and bees from a healthy colony, and the queen from the diseased colony. The queen is of course caged for 24 hours. The rest of the space was filled with frames of foundation. The old hive was set to one side, pointing in the same direction, and as close to it as possible. In front of it was attached a bee-escape consisting of a tapering perforated tin tube, all other means of egress being closed. The perforations of course were too small to admit bees. The flying bees and hatching bees, as fast as they would come out of the parent colony, would go into the new hive on the old stand. The old hive was relieved of its bees and brood, leaving nothing but combs and honey to be melted up.

It will be observed that the Case modification is much the same, except that his tin tube has no perforations. It is six inches long, and just large enough to let one bee or drone through. Mr. Case explained to the writer that perforations have a tendency to attract robbers; that the solid tin tube, with its opening so far from the parent hive, does not draw robbers.

The Case method has the further advantage that it delivers the bees, young and old, to a point immediately in the center and in front of the entrance of the hive on the old stand; and as fast as young bees hatch out from what brood may be healthy, they reinforce the swarm. By this treatment no healthy brood is lost; and as the average of diseased colonies will contain only a small percentage of infected brood, there will be but very little loss through the treatment.

The only caution we wish to offer is that the parent hive be properly shaded if the treatment is applied in hot weather. We have had reports from those who have tried the Baldridge treatment, showing how combs were melted down because of the contracted entrance through the bee-escape. The *solid* tin tube would be worse in this respect than the perforated tube. It will be simply impossible for bees to ventilate a hive exposed to the hot sun with a solid tin-tube bee-escape attached as in the drawing. If hives are in suitable shade, or if the weather is not excessively warm, the treatment will work as described by our correspondent.

This treatment, or a modification of it, has the endorsement of the Bureau of Entomology—see Bulletin 442, by Dr. Phillips, subhead "Treatment with Bee-escapes."

From the fact that we have heard excellent reports from the modified Baldridge treatment, we have no hesitation in recommending it to our subscribers, providing the weather is not hot nor the hive exposed to the sun.—Ed.]

THE VARIOUS PHASES OF THE SWARMING PROBLEM CONSIDERED

Caring for the Brood from a Shaken Swarm; Removing the Queen and Destroying the Cells

BY DR. C. C. MILLER

[A short time ago in one of our letters to Dr. Miller we expressed the wish that he would tell us more fully than he had explained in the various Straws what he knew about the prevention of swarming for the production of comb honey—that is to say, we desired him to give us in an article his latest revised ideas on the subject. Probably no man in the United States who is a producer of comb honey has given this more earnest and thorough attention than the sage of Marengo. The article will speak for itself.—ED.]

I am requested by the editor to tell what is the best way to prevent swarming. I don't know, because there may be some plan that I know nothing about that is away ahead of any thing I know. But as I have been fighting bitterly against swarming during my whole beekeeping life, it may be that I can say something that may be useful to those of less experience.

Swarming can be prevented—at least for a time; but I question whether there is any profitable plan of treatment that will allow us to say: "There is a colony which has been so treated that it is absolutely certain not to have any thought of swarming during the present season." Even when a colony throws off a natural swarm, although the rule is that (leaving out of account after-swarms) neither swarm nor mother-colony will swarm again till another year, yet there are exceptions to the rule. But those exceptions are so rare in most places that if they should all be allowed to abscond the loss would not be great. It is probably safe to say that a colony can be so managed that it will be just as safe from swarming as a colony that has already swarmed naturally.

One plan of such management is the well-known one of shake swarming. This is really anticipated swarming, as the plan is merely to take away all brood, leaving the bees in the condition of a natural swarm. As the bees sometimes desert when left entirely without brood, one frame of brood may be left for three or four days, or until the queen gets fairly started in one or more of the other frames. It has the advantage over natural swarming, besides other advantages, that *all* the bees may be left with the swarm. It has, however, the disadvantage that taking away the brood weakens the colony by just so many future workers. It may be urged that bees do not go afield till 16 days old, and so it will be from 16 to 37 days before the bees from this brood will become fielders—too late to count much on the harvest. But the harvest may last beyond that. Besides, the department of labor in which a worker engages is not altogether a matter of age, but depends to some extent on the needs of the colony. Each young bee that emerges to-day may liberate one of its older sisters for field-work, whether that older sister be more or less than 16 days old.

But with shake-swarming there is a way of recouping half the loss caused by taking away brood. When the first lot of colonies are shaken, say half or less than half of the apiary, pile up the beeless brood three, four, or more stories high, over colonies that need not be very strong. Then eight days later, when the brood in these piles is sealed, shake a second lot, and, instead of giving them empty combs, give them the sealed brood from the piles, shaking off all the bees in front of the hive which was under the pile. So far as I have tried it, these frames of sealed brood work just the same as empty combs.

It is often said that a queen of the current season's rearing will not swarm until she has wintered over. That depends. If a colony is fully in the swarming humor, having cells well started, and the old queen is exchanged for a young one, the colony will just as promptly swarm with the young one, even though she may not have been laying a week. But if by any means the colony becomes queenless, and rears its own queen, or if a ripe cell be given when it is made queenless, the resulting young queen will not swarm that season. In general, if a colony be kept ten days without a laying queen, and a young queen be then given, either a laying queen or a virgin, there will be no swarming. But it must be remembered that rare exceptions with these young queens will occur. They are probably more likely to occur with Italians than with blacks. The later in the season the young queen is reared, the less likelihood of an exception.

A way, then, to prevent swarming is to remove all queens (at the beginning of the clover harvest in clover regions) and ten days later destroy all queen-cells but one. Or, better still, destroy *all* cells, and give a young laying queen.

For those who are desirous of improving their bees, this plan of never allowing queens more than a year old has a serious objection. It gives no adequate opportunity to test the value of a queen as a breeder, for the credit of a crop must be divided between the two queens that have furnished the workers. A compromise plan must then be followed, and the one generally followed by the writer may here be given.

As soon as there is any suspicion that the

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THE BOSTON IVY AS A HONEY-PLANT

BY A. S. KINNEY

While talking with a neighbor one day mention was made of some honey which he had purchased from a Mr. X in an adjoining town. "This honey," he said, "had such a strong odor of the horse-stable that they could not eat it." Knowing the location of Mr. X's apiary as I did, and the careful kind of man he was, I knew at once that the odor was not that from the horse-stable, but probably from a certain kind of nectar which the bees had collected. Having never seen in the bee journals any mention of the plant which I presumed was the cause of the offensive odor of Mr. X's honey, as he lives near where there is much of it I have thought perhaps the readers of GLEANINGS would be interested in the following observations which I have made upon the Boston ivy (*Ampelopsis veitchii*) of the florists.

This vine was introduced into this country a number of years ago from Japan, and at once gained great popularity because of its hardiness and rapid growth. It is especially adapted to use upon stone and brick buildings, and wherever one finds such buildings in the Northern States they will usually be more or less covered with *Ampelopsis veitchii*.

Where an apiary is located near a city or village where there are mills, often there are acres of the plant within range of the bees. This may be a most desirable state of affairs, as it is in this especial section where my apiary is located, while in other sections, where there is a midsummer flow of nectar, it might prove a very serious objection. From my own observations, however, it appears to me that the chances are more in favor of the ampelopsis being a help than a hindrance where it forms a part of the bee pasturage. In my own case, now that I know how to take care of the nectar when it comes in, I find that the ampelopsis fills in a considerable time when the bees would be idle, probably hanging on the front of the hives, or, worse, trying to steal from their neighbors.

The ampelopsis usually, in this region, begins to bloom between the 15th and 20th of July, at which time the clover-flow is about over, also locust and basswood. These plants often continue in blossom four to six weeks, those upon the north side of buildings coming into blossom more than a week later than those on the south side. The bees are very fond of the nectar from these flowers, simply going crazy over it. Although they often collect more than they need for immediate use, and store it as surplus, it is very difficult for me to get any considerable quantity pure, as it is more or less mixed with other kinds of nectar, especially white clover, my bees having access to several acres of lawn upon which there is considerable white clover all summer. The bees work upon the white clover in the morning, as there seems to be no flow of nectar from the ampelopsis until about noon. After this flow begins one will seldom see a bee working on any thing else. This flow usually continues until nearly night, and during this time one would think by the sound that there was a swarm in the vines. In

The familiar Boston ivy, *Ampelopsis Veitchii*.

W. C. Waller, of Wiggins, Miss., with a prime swarm that issued March 25. The bees conveniently clustered on a limb from a fig tree that had been thrown over a fence.

fact, I have been notified twice by persons hearing the noise that my bees were swarming.

So far as I have been able to observe, I do not find the honey from this plant objectionable to eat. One soon becomes accustomed to the odor, and there seems to be no bad taste. I have never noted any injurious effect from its use, either as food or as winter stores for the bees, and have not been able to determine whether the nectar itself has the objectionable odor or whether it is absorbed from the pollen. I have often observed, however, that other honey stored in the same place with the ampelopsis honey will soon become scented. When capped honey is left on the hive while this nectar is coming in, it seems almost as strongly scented as the ampelopsis honey itself.

The method I have practiced for several years seems to work very well with me; but probably under other conditions this plan would have to be modified. As soon as the first ampelopsis blossoms appear I remove all supers. If a colony is very full of bees I put on a second story, and into this I put any combs that are not ripe enough to extract, and fill out with empty combs. If there is a considerable flow of nectar coming in at this time, as soon as the brood-nest begins to get crowded in those hives that have no supers, I put on a second story, and move the full combs above, and put empty combs below; but as a rule there is not much more nectar coming in than the bees need for food except in strong colonies. When the ampelopsis flow is over I remove all of this honey I can from the strong colonies, and store it above such colonies as are not strong enough to give any surplus from aster and goldenrod, and give to the strong colonies the partly filled sections that I had taken off earlier in the season. When it comes time to take off the supers I distribute the combs of ampelopsis honey among the hives as they are needed, feeding sugar syrup to those colonies that are still short of stores. This method works well in a small apiary. I do not know whether it will do as well in a large one.

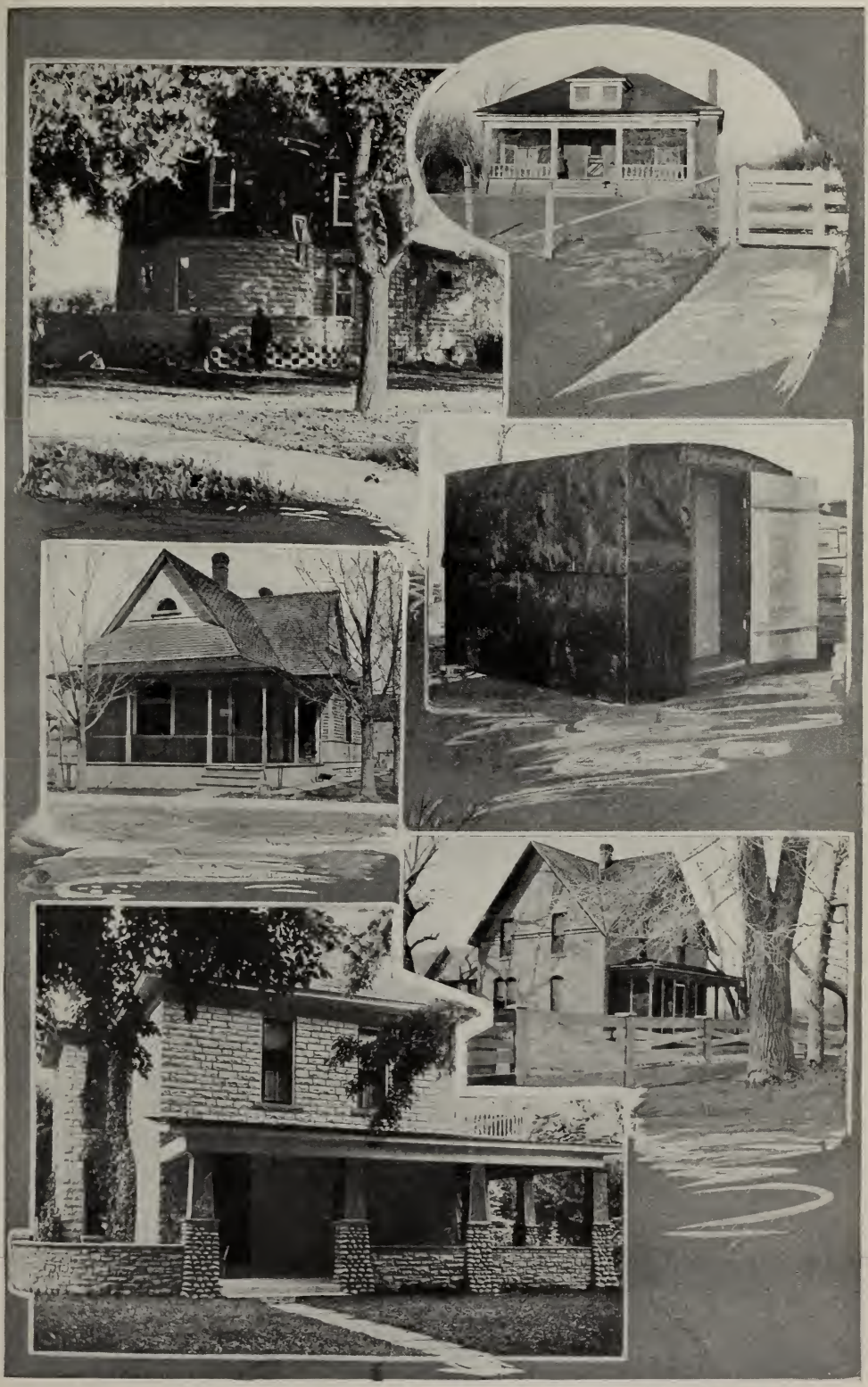
South Hadley, Mass.

THE HOMES OF BEEKEEPERS

BY WESLEY FOSTER

The home is the center of our national life. If we have not wholesome and happy homes it matters not how successful our business is—we are not getting the best out of life. We hear continually of the hardships of life on the farm and the barrenness of most of country living. The majority of specialist beekeepers live near or in towns, so they come in what we may call a semi-rural class. From my observation I believe that most beekeepers' families have fewer hardships and more pleasures than the majority of farmers' families. Rural conditions are improving, and well they may. The point is that beekeeping contributes to a wholesome, full home life. The remuneration for capital invested and time required is better than most callings coming within the agricultural class. I want to show you a few of the beekeepers' homes that have led me to make these observations. These are representative of western conditions.

The upper left-hand view is the home of Hon. O. C. Skinner, Montrose, Colorado. Mr. Skinner owns about 200 colonies of



Some homes of Colorado beemen. The middle view on the right shows R. W. Ensley's "iron-clad" mouse-proof bee-house.

FIG. 1.—Willows struggling to get a start.

bees, and manages a part of them himself. In a later article we will show a picture of one of his apiaries, located on a shed roof. The upper right-hand view shows the home of F. W. Brainard, Canon City; and the next one, the middle view on the left, the home of Geo. F. Lester, at Delta. The middle view on the right, while not the *home* of a beekeeper, is nevertheless the home of one of them for a part of the working hours, being the mouse-proof bee-house built by R. W. Ensley for one of his out-apiaries in Delta County. It is covered with sheet iron painted black. The two lower pictures show the homes of A. F. Foster, Boulder, and A. F. Stauffer, Delta. In connection with the latter, it is interesting to note that the bees paid for it in one year.

Boulder, Colorado.

THE WILLOW AS A POLLEN AND HONEY PLANT

BY J. L. BYER

Among the different honey sources of Ontario and other sections in the same latitude, probably none are more important than the willows, so familiar to nearly every one. True, they are not to be compared to the basswood, clover, and other sources of surplus honey, yet indirectly they play a very important part in beekeeping, as they are very necessary for the early pollen and honey they yield at a time when brood-rearing needs just such a stimulus. I believe it is estimated that there are about 30 varieties of willows native to Ontario; but personally I know only a very few by their right names, and generally the ones we are familiar with are called by local names whenever we refer to them. Mr. Doolittle, if I am correct, claims that the pussy willows yield no nectar; but I am convinced that in this locality they do yield some as well as an abundance of early pollen. In this connection it is well to recall the fact that Mr. Doolittle claims that the basswood yields no pollen in his section, while here, more than once, I have seen the bees getting large quantities of greenish-colored pollen from this tree, all of which goes to show that either localities differ or that observations have been made at a time when atmospheric conditions were not favorable for the secretion of honey in the case of the pussy willow, or for pollen in the basswood.

The large varieties of the willows, such as are commonly seen around mill-dams and creeks, are great yielders of nectar, and I have often seen the bright drops glistening in the early morning of a warm day in late April or early May, according to whether we have an early or late spring. With good weather for a few days, the strong colonies will literally flood the brood-nests with nectar, and brood-rearing receives a tremendous impetus such as no artificial feeding will bring about. Once I knew of a large quantity of surplus taken from an apiary near us, but that was an exceptional season, and the bees were abnormally strong. It is not likely to happen again in twenty years.

The willows in general are very easy to propagate, a small limb stuck in the ground

in early spring nearly always growing, especially if the soil is of a moist nature. Along the banks of streams it delights to grow; and it is wonderful to see the buffeting it will stand from ice, floods, etc. Once getting a foothold it grows rapidly, and defies almost any thing that would easily kill any other tree. Within a few yards of our home a stream runs through a strip of bottom land about a quarter of a mile wide, and for a number of years these "flats" near us were pastured closely. Every thing had been cleared off in the shape of timber, and naturally the cattle kept all willows that might get a start after the spring floods trimmed off at sight. During the past four or five years this land has been devoted to growing hay, and the willows that have started along the sides of the stream are forging ahead, and are in many cases out of all danger of the cattle. The farmers do not object to them, as they act as a soil-binder and prevent the banks washing away each spring. Great floods rush through this flat land every spring, and floes of ice strip off much of the bark of the young trees, but still they grow.

Fig. 1 shows some of the willows referred to, and will give an idea of the harsh usage they have to endure each spring in their struggle for existence. The "flats" had been covered with a raging torrent the day before the picture was taken, and the following night a sharp frost came and the stream lowered, leaving an ice jam about a quarter of a mile long. The willows can be seen at the left of the picture, with the ice piled around them. In the distance, and to the left, can be seen our house, while to the right, still further away, will be noticed the church that our family attends.

The other picture shows the stream just a few yards west of the house, and a neighbor's bridge for crossing to the road. The large willows shown there were planted to help hold the abutments of the bridge from washing away in the spring freshets; and it is not so very many years since we stuck in mere branches, and now they are great trees that serve the purpose originally intended when they were first planted, and are, besides, a source of delight each year to the beekeeper and his family who live so near them. If any one has waste land it certainly pays to plant the larger varieties of willows for bee forage, as they grow so very quickly and yield nectar every year provided the weather is suitable for the bees to visit the trees at the blooming period. One man I know, who is not a beekeeper, plants willows along a narrow stream that runs through his property, to avoid the land washing away, and in addition to filling that purpose admirably he systematically uses this ground for producing fuel for his use in summer months, cutting down the trees as they assume large proportions, but all the time putting in fresh slips to keep up the supply.

Mt. Joy, Ont., Can.

FIG. 2.—Willows planted for the purpose of preventing bridge abutments from being washed away.

SOUTHERN BEEKEEPING PROBLEMS UNLIKE THOSE OF THE NORTH AND WEST

BY L. W. CROVATT

When the ordinary every-day beekeeper of southeast Georgia reads in the bee journals of the perplexing problems encountered by brethren in other parts of this great country centering about the wintering proposition he should feel thankful that this is not one of the troubles which confront him.

Ordinarily speaking, the terrific rigors of the snows and freezing temperatures may be said not to exist in "this neck of the woods." True, we have at times weather which is unusually cold; but there is never in the region of the coast, in "the flat lands," such low temperatures that strong colonies would freeze, even with full-depth entrances, such as are used in summer. Hence the bees are wintered on the summer stands.

In other words the original place where the colony is put is regarded as a definite fixture for all time, providing, of course, that no move otherwise be deemed necessary. Hence the average apiarist is enabled to sit calmly by the fire in the winter and reflect upon the troubles experienced in the West and North, where the task of taking the bees to the cellar and again moving them to their stands when the "mystic touch of nature" will have caused the balmy air to be again suited to the needs of the busy workers.

Down in Georgia, on the banks of the Savannah River, some three hundred miles from Atlanta, the capital, the average beekeeper can also smile at the thought of the problem of "building up" for the spring flow. Further upstate there are splendid spring flows, principally from the titi and gallberry, which afford a water-white honey of splendid color and body and of excellent quality. But down here in Chatham County the spring flow may be said to be a negligible quality, for there is little to be had of the superfine blend of amber honey from the myriads of wild flowers.

It is unnecessary, therefore, to worry particularly about the "building-up" process. True, it is recognized that strong colonies are desirable under any and all conditions; and we, for this reason, keep an eye open for developments, giving "the helping hand of man" to nature if necessary. As a usual thing, however, mother Nature is fully equal to the occasion in this locality.

"Why, far-southern Georgia must be the ideal spot," I hear some one say in fancy. But pause, brother; for, while we have ideal climatic conditions, we get practically no spring flow in this section of Chatham County, and are, therefore, absolutely dependent upon fall flowers, principally goldenrod and swamp myrtle for our surplus, and fall weather is, to say the least, rather uncertain.

This spring I have on the hives at this time (my home apiary of fifty colonies) about eighteen hundred or two thousand pounds of a very dark inferior honey secured from a source unknown as yet, which will probably not net three cents a pound; but this is the exception to the rule as before noted. I get $2.00 per gallon for fall honey.

Queens in strong colonies as a rule begin depositing eggs about the middle of January. This depends largely upon the honey left over from wintering, as it is unusual to disturb the brood-nest. By early March, peach, pear, and plum trees begin to bloom, and this gives a great stimulus to brood-rearing.

A corner in one of Louis H. Scholl's apiaries of divisible brood-chamber hives, *See Beekeeping in the Southwest.*

By April the colonies begin to swarm if let alone; but prevention of natural swarming is greatly desired. I have adopted the method of seeking the queen and removing her on one frame of brood, taking out the brood-nest and placing on the bottom-board the super or full-depth extracting story (which is always empty in early spring). The brood-nest with the other seven frames is placed above the honey-board. If no increase is wanted I go back in eight or ten days and destroy the queen-cells; but when increase is needed I merely leave an opening under one end of the cover. In time I have a fine Italian queen at work, which was raised by the bees. She sees to it that there be no rivalry, by destroying all other cells.

By August our colonies are of rousing proportions with thousands of workers tearing in and out of the entrances as if "possessed," seeking nectar and pollen.

Toward the middle of August the goldenrod begins to bloom. In September the swamp myrtle is showing its pretty minute white blossoms on all sides, and in October the extractor is brought into play and the surplus made ready for the market. This honey granulates in from three to five months.

In handling surplus honey I have always made it a practice to deal directly with the consumer. I guarantee every drop of the honey sold, and frequently have customers who take from two to three gallons at a time and call for more later. Of recent years little comb honey has been produced in my apiary because of the swarming propensities thereby developed; but another year I shall be compelled to return in a measure to such production because of insistent demand for fancy comb products.

Savannah, Ga.

FEEDING BACK EXTRACTED HONEY FOR FINISHING SECTIONS

The Requirements for Success, such as the Question of Bees and Queen, Weather, Feeders, etc.

BY E. S. MILES

Now and then there is a beekeeper who reports success in feeding back; but perhaps the majority do not find that the plan works well at first. I myself was among the latter class; but having studied the theory of it thoroughly I was able to see some of the causes of failure, and after several trials was able to eliminate most of them, so that now I consider the finishing of some of the section honey by feeding back a part of the regular program each summer.

As there is a scarcity of section honey now, as compared with the supply of extracted, it would seem that every thing tending toward helping the producer of comb honey would be in order. As to whether it pays to feed back, I can not say positively. I think it has paid me, yet it might not pay another. It would depend upon how he is managing his bees, number of stands, how much his help costs, and what his time is worth in other work.

One of Scholl's shallow-story divisible-brood-chamber hives. A veritable stack of bulk comb honey.—*See Beekeeping in the Southwest.*

As to feeding for the purpose of getting sections finished, the following points in the order named as to importance must be considered.

1. Character of bees and condition of colony to be used.

2. Kind of weather to be expected for the purpose.

3. Arrangement of sections in supers; supers on hives; kind and arrangement of feeders.

4. Preparation of feed and method of feeding.

The right kind of bees is absolutely necessary as a foundation to success. As nearly as I can tell, a colony that does first-class work in sections in a honey flow will usually though not always be all right for this. I always try those that have been the best

The hot-weather costume in Uganda, Africa.—See A. I. Root's department

and quickest at finishing their sections; and if they prove good for feeding back I use the same colony each year until the queen begins to fail. I do not say black bees are the best, nor hybrids, although more suitable colonies may be found in a given number of these; neither do I say a good prolific queen will insure that colony being a good one for this purpose. My experience is that any colony that does good work in sections has a queen that keeps at least a reasonably good-sized brood. But on the other hand I have known some very prolific queens whose bees did not seal and finish their combs as quickly as others. So in working the colonies for section honey during the flow I watch for quick sealers.

It has been my experience too (but this may not be the same in all places) that the colonies fed are quite apt to swarm. As this should be avoided, I make it a point to select among the quick sealers those that have stood the greatest pressure without swarming. Luckily these two traits often seem to go together—those that are slow to swarm usually being good storers and sealers. It is hardly necessary to add that, every thing else being right, the stronger these colonies are, the better. One does not want to use any more colonies than will finish the number of sections he expects to have, as each colony uses considerable honey before doing the best work in the sections; and the more sections one colony finishes, the greater the chance for profit.

This depends largely on the weather and length of time one has to continue the work, and his success in choosing the right kind of colonies for the work. My experience for western Iowa is that the white-honey flow from clover and basswood usually stops about the middle of July, and heartsease begins to yield a little from the 10th to the 15th of August, so that I can count on about three weeks between flows in which to feed. I am doubtful whether it pays to feed during a flow. Mr. Alexander, whose opinion we all respect, said it did; but the one time I tried it, those colonies did not do as much in the supers as the ones not fed, and 75 per cent swarmed within a week or ten days after the feeding was started. One swallow, however, does not make a summer, we are told; so this experience might not always be repeated everywhere. In the two or three weeks' time between clover and heartsease I have usually gotten from 15 to 25 supers finished per colony. The right kind of weather is also necessary. But, fortunately, here in Iowa we usually have good weather for feeding at just the time needed. It is hardly necessary to say that it requires good hot weather with warm nights. The arrangement of supers and feeders is of importance, as the better these are, the more chance for success. I was never able to make much headway at feeding back until I began using the Alexander feeder. There may be others as good for this purpose, or even better; but I know the Alexander feeder is all right. I have some made of 2 x 6 stuff, and long enough for ten-frame hives, which I use on eight-frame hives, and I prefer two feeders on each hive. This gives capacity for a large feed, so that, if one does not feel able to take the time to feed any during the day, a feed each evening is equal to a good fair flow. When placing

the feeder, set your colony to one side, lay down one or two solid pieces of plank three or four feet long; put on the feeders and bottom-board where the hive stood; then replace the hive of bees, first driving them from the bottom of frames by smoking them so as not to mash any bees when setting on the end cleat of the bottom-board and partitions in feeders. The hive should also be blocked up 7/8 inch at the front end for ventilation. If this blocking up leaves a crack between the first feeder and the hive, push a couple of small strips under it so that all will be tight around the feeders.

One must be careful to see that robbing does not get started; for while these strong colonies may not be robbed out, yet a big fight, and bad bees to handle, may result, as well as having the work hindered.

After the feeders are adjusted properly, put on two or three supers of sections, and in arranging the sections to go back put those which are the nearest finished on the outside of the supers. If there are as many as eight sections for each super all sealed on one side, put the sealed side to the outside of the outer row in each super. It is doubtful whether it pays to feed for any less than half built out. But those needing the most work must always go into the middle rows. The nicest work is on those just about built out but not sealed over. For securing the best results, those partly sealed should be uncapped. I think it is preferable to take off all sections a little sooner than usual where one feeds back, as it not only keeps the combs and sections freer from travel-stain and propolis, but it is not so necessary to uncap the sealed portion as it is after the flow has slacked when some combs are sealed light or thin. If feeding, or another flow starts, the parts unsealed will be "bulged," for the bees will build these unsealed parts out to the proper distance from the separators, even if it is only two or three rows of cells at the bottom or sides.

If, however, they are taken off as soon as the height of the flow is over, in most cases only the part built out will be sealed, so that, when the work is taken up again, it is more as it would have been if the flow had continued until the combs were finished. I think this is worth considering; for not only is it a puttering and difficult job to uncap sections, but these uncapped combs drip, and tempt robbers, and make more work for the bees, for a good part of this uncapped honey will be taken out of the combs as soon as the bees get a chance.

I do not like the common standard super for getting honey finished. I prefer a super 3/4 inch wider than the standard width, so as to allow a slatted separator to be tacked to the sides of the super, using 1/2 or 5/8 inch sticks behind it, thus giving a clustering space *outside* the outer row of sections in the super. These sticks are put one at one end of each section, thus using five sticks to each super. Then have the follower board perforated with 3/8-inch holes, or slots, so the bees in clustering behind the follower will also have access to the outside of the combs on that side. Such an arrangement is a great help in getting the outside rows built out, either during a flow or when feeding. There is no trouble in using such a super on a regular hive, as it projects only 3/8 inch on each side; and any cover, unless, perhaps, a telescope, will cover it just as well.

The feed for finishing white honey must be white honey, of course; but it need not be ripe; in fact, it must be green, or else thinned to the consistence of green honey, and it should be fed as warm as can be used without killing bees.

When the flow is drawing to a close, if a colony has the supers about finished, instead of putting on another section super on top, as is usually recommended, put a shallow extracting-super on the brood-chamber and put the sections on top of an escape-board, and get them off; mass the unfinished into supers as described above, on quick sealers, and extract these shallow supers as fast as needed to feed the quick sealers. To one who has not tried it, it may be a surprise how much some colonies will put into a set of built combs after section work has about come to a standstill. I would recommend that the first few feeds be given at dusk, so as to avoid any danger of robbing; but after that, the bees become somewhat accustomed to it, and the feeder can be filled as fast as emptied all day. Use a good smoke in feeding, keep the bees out of the way so the feeders can be rapidly filled, and keep any robbers or stray bees away from the feeders while uncovered. The hives should stand level sidewise, so that the feeders will hold their full capacity; and they should not slope much toward the entrance, for the same reason.

As soon as wax secretion is well under way, as can be told by seeing that the lighter combs in the center are being built out, raise up the supers and put on two more. I always try to have five or six supers on after wax secretion is well under way, always having the nearest finished ones at the top, and one or two with plenty of storage room in them next to the brood-chamber.

If I have about all the supers necessary on, and still no super is all finished, I take

off one or two of those nearest finished, and either raise the others and put on more, or, in closing up, mass the unfinished from these on one or more of the best of the colonies fed; and as I finish up I drop the number of colonies used accordingly. I also taper off the feeding when there are no more partly built ones to put on. In putting back the last few supers of these fed sections that are nearly done, only a little feed comparatively is necessary in order to get them capped.

The last super to the hive will be likely to be a little travel-stained, as it must be finished next to the brood-nest. The others having been sealed one or more supers up from the brood-combs, and while new wax is plentiful, are very good, although not quite equal to those built and finished in a good steady flow. But I think that often what would otherwise have been No. 2 to culls, can, by this management, be made into No. 1. I find less honey in the brood-chamber after two or three weeks' feeding than one would expect where there is a good queen. At first, as in the beginning of a heavy natural flow, the brood-nest is chock full; but after the bees begin storing above, they seem to get their "second wind." The queen gets down to business, and the loose honey goes above.

I frequently find colonies with hardly winter stores in the brood-combs after two or three weeks of heavy feeding. But these colonies will be "powerful" strong, and must have attention so as not to swarm after the super room is taken away, especially if there is a little natural "picking."

Dunlap, Iowa.

THE VARIOUS PHASES OF THE SWARMING PROBLEM CONSIDERED

BY DR. C. C. MILLER

Continued from page 408

bees are thinking about swarming, make search for queen-cells in some of the strongest colonies. If no cells are found in these strongest, no need to go any further. If any are found, then it may be best to go through the whole apiary, destroying all eggs and larvæ found in queen-cells. Ten days later make the rounds again. Destroy, as before, all eggs and *young* larvæ in queen-cells. But if a colony is found with sealed cells, or cells containing larvæ well advanced, then the colony must be treated. If the queen be a good one that you wish to retain, take her with two frames of brood and bees, and with these form a nucleus, and kill all cells on the frames left. About ten days later, kill all cells again, and return the queen with her two frames and bees. Leave a vacancy at one side of the hive while those two frames are absent—little danger that those queenless bees will build comb there. That colony may not make any further start toward swarming again, but it may; so you must examine every ten days, and treat it again if advanced larvæ are found in cells. I don't think I ever knew a colony to need more than the second treatment.

Suppose, however, you come to a colony needing treatment whose queen you do not care to continue. Remove the queen, kill all cells, and at the end of ten days again kill all cells and introduce a young laying queen. (Having young laying queens ready is an important part of the game.) If your young queen is in a nucleus with full-sized frames, a nice way to introduce her is to take her with two frames—more frames if she has them—as also the adhering bees, and put them in the queenless colony. That colony you may now call a "passer," for you will "pass" it at each examination without further attention for the season.

Some colonies will never get any further than to have eggs or small larvæ throughout the season, and, of course, they will need no treatment. Some may be found, especially if you have good stock, that will never have even an egg in a queen-cell throughout the season. These will be the ones likely to have record crops, and among these you should find your stock to breed from.

Marengo, Ill.

[In his article Dr. Miller refers to the shake-swarm method, assuming that our readers are familiar with it. As some of our newer readers and some beginners may not know just what it is, we here give it as it appears in the latest edition of the A B C and X Y Z of Bee Culture.

After the honey-flow has begun, and perhaps three or four days (not earlier) before the colony is expected to cast a swarm, the hive is moved to one side of the stand, and an empty one, just like it, is put in its place.* In this hive are placed frames having foundation starters or frames with full sheets —preferably the latter. But if neither is available, empty combs may be used. The bees of the parent colony are then shaken or brushed in front of the entrance of the *new* hive on the *old* stand. Some go so far as to brush *all* the bees out of the old hive; and this can be done if the weather is hot and the nights warm; for young hatching brood will soon be out to take care of the young brood. The supers from the parent hive are next put on the new one. The parent colony is then moved to a new location or left by the side of the new hive with its entrance

* Reports show that if the colony is shaken or brushed, from a week to ten days before a swarm would otherwise issue, no good will be accomplished, and that the bees will be likely to swarm. The shaking should not take place *before the bees feel and show the desire to swarm.*

facing in the same direction. In either case the entrance should be contracted.

If work is already partly begun in the super, the bees will continue work, and rush the honey above. In some cases it may be advisable to use perforated zinc between the super and brood-nest to keep the queen below.

It is encouraging to note that Dr. Miller still thinks favorably of the shake-swarm plan. Some years ago it was believed that this method was going to solve this much-mooted problem more fully, perhaps, than any thing else that has been proposed; but of late years we have not heard so much about it—not because we supposed it is not in use, but rather because it was so much discussed years ago that many users of the method think it unnecessary to keep harping about it. But it occurred to us that the shake-swarm method might be profitably discussed again—that is, as to whether it has been a success as it originally promised.

So far as we can see, Dr. Miller is entirely orthodox—that is, he has set forth the general principles governing the laws of swarming, and the beginner will do well to read very carefully what he has to say. —Ed.]

SOME SEASONABLE DONT'S TO THE OWNERS OF AUTO TRUCKS

BY ROBERT M'LEAN

Having noticed Mr. D. L. Woodward's article on auto truck for migratory beekeeping, Apr. 1, p. 213, I will give a few suggestions which may be of use to him.

Mr. Woodward speaks of his first season's experience being pleasant but quite expensive. Well, that is the case with most people in their first season's use, but with a large number the pleasant part is omitted. From the appearance of his car and the horsepower he must terribly overload it or the engine is not in the proper condition if he uses a gallon of gasoline for six miles. Usually with a car of 40 or 45 H. P., double the milage he obtains from a gallon of gasoline is not considered any thing unusual. Although the care and condition of the engine goes a long way toward obtaining the proper milage, there are numerous causes which would tend toward excessive consumption of fuel.

First, if the carburetor is not properly adjusted it will cause the engine to burn gasoline without gettinig good results, and would cause an excessive deposit of carbon in the cylinder.

Leaky piston rings or valves cause loss of compression, likewise a loss of gasoline vapor. The remedy is to use new piston rings or grinding in the valves.

If the spark is not kept well advanced while running, the consumption of fuel will be greater than when operating under an advanced spark. On some cars the throttle can be opened so the car goes about 15 miles per hour on retarded spark, and by advancing the spark the speed can be doubled without any increase in fuel consumption.

As a general rule, converted touring cars are not very successful when operated as trucks, because the owner usually thinks that a touring car having from 30 to 60 H. P. can carry a load on its chassis equal to a truck of the same power. Overloading is death to pneumatic tires—in fact, any tire, even a solid one, will not give satisfactory service when overloaded, and the same applies to the car as well as the tires.

From all appearances Mr. Woodward has an extremely heavy body on his car, which, when loaded, will account for some of his cost of operating and upkeep. A commercial body placed on a car should not be any heavier than the touring body it replaced, and better if not as heavy, if it can be built substantially enough without excessive weight.

It is not considered good practice to have the body overhang at the rear more than one-third of the total length of body, as it puts too great a weight on the rear wheels, resulting in excessive tire wear, which every one owning an automobile knows is expensive.

I think that, if a person secures a sturdy car of some good reliable make, and has convertible bodies, one for pleasure and another for commercial work, with a reasonable amount of care they can be operated more economically than a team of horses, considering the amount of work done and the larger territory it enables one to cover.

There is undoubtedly a great future for the light truck in the beekeepers' line of work in nearly all parts of the country. I have had considerable experience in the manufacture and repair of cars.

South Haven, Mich.

SPRING MANAGEMENT

Caution Regarding Early Manipulation

BY CHAS. H. CARGO

When I began beekeeping it was with a clear board—no designs of the art, good, bad, nor indifferent, clouded my views. I had no knowledge of either the box hive, Langstroth hive, Danzenbaker hive, nor any other hive. Viewing my assets in this light I discovered that this negative fact was of real value, as I was not called upon to part

with preconceived notions, and could listen to the pro and con of argument.

The best results in a practical way are obtained from methods which have been put into practice by the individual beekeeper himself, and with which he has gained experience, spelled with a rather large *ex* too.

The first thought in returning springtime is, "How are the bees?" Well, we must see. No, don't. In taking this first walk among the bees we will imagine a large sign ever hanging in front of us on which we see the words, "Bee Careful." The first visit may well be confined to changing bottoms for clean ones, and leveling up all the hives to a true level sidewise, and an examination of a few hives throughout the apiary only. An axiom comes in to explain this, and it is handy all the year—"Never disturb bees without brood." Bees without brood sometimes leave their hive; and in one case bees in an upper brood-chamber left their hive while it was set aside a few moments, and attempted to return to their regular entrance below, and were killed (some reason to be a wee bit careful). I believe the bees need to be stirred up to their work, but it is to be done gently. One season I found a hive being robbed. The robbers were trapped, and I thought it was just the thing; but, alas! I found later I had ruined another colony as well as the one robbed. Be sure you know the whole trick before going too far.

In a day or two we go to the yard again, and with more confidence if fair weather has intervened. Hives are now opened and brood-nests hastily examined and contracted wherever necessary, and the hives closed. The condition in which the bees are found is left penciled on the side of the hive. The season's work now swings out in full view before us, and the notes left on the hive become our chart to study and ponder over. What method shall be pursued, and what harvest is to be sought? Market conditions and flora both are to be considered. Early queens are to be raised or bought, and the extent of increase fixed.

Swarming is to be provided against by proper management, and bees must be watched closely to prevent heavy injury from orchard spraying. The National Beekeepers' Association should test out a case of intentional poisoning under our present laws against some blossom-sprayer, so as to define clearly the right to put out poison on blossoms, whether bees are known to be kept within a reasonable distance or not. No new law is needed to cover such cases, but a precedent ought to be established. I doubt if it is necessary even to prove that any bees were killed. Proof of the spraying and its poison on the blossoms is usually sufficient. That is, prove that honeybees visit apple-blossoms, and that such blossoms were intentionally poisoned. How would a very small entrance do for the week of apple-spraying, to save brood?

Beginners should not treat their bees as so many treat their horses—turning them into a field but never looking over the fence to see if any grass is there. Examine your flora. Know it. Fill in the gaps as best you can. Even a very small flow is then of increased value. Raise any thing, or see that some one else raises it near you. Alsike clover, sweet clover, buckwheat, are standard. A small patch of sweet clover is of great worth to a whole apiary for a fall flow.

Bladen, Ohio.

ANOTHER UNSATISFACTORY EXPERIENCE AS A HELPER IN AN APIARY

BY B. H. VAN TRESS

On p. 58, Jan. 15, the editor thinks "Subscriber" was a little hard on the California beekeepers. I know that there are many perfect gentlemen among the beemen of California; but I also know that there are others just the reverse. I had an experience very much like the one described, and, in addition, I had a sick spell of two weeks caused by eating food not fit for human consumption. My employer then refused to pay me full wages for the little time I was able to work; and as I was among strangers I was obliged to take what he offered or nothing.

My advice to those looking for work of this kind is to make diligent inquiry first; and if the one looking for help does not answer fully it is better not to make the experiment at all. In the future I shall stipulate $5.00 more, and traveling expenses one way, if the bargain is not lived up to strictly.

Greenleaf, Idaho.

[Undoubtedly there are unscrupulous beekeepers who will take advantage in every way of a helper; but there are plenty of good men who are anxious to get good help, and are willing to pay reasonably for it. It is a great education to a young man desiring to learn the bee business to work a season with different producers.

As a matter of business we advise having a full contract drawn up in writing, which should be signed by both parties. A lot of trouble? Yes, to be sure; but such a precaution might save ten times more trouble later on.

The following from J. G. Gilstrap shows the class of helpers that many ranchers have to depend upon in an emergency, and this condition, of course, influences the wage paid for help in general.—Ed.]

AN ANSWER TO "SUBSCRIBER," PAGE 58

BY J. G. GILSTRAP

We are glad that Gleanings conducts an "experience" meeting. "Subscriber" gives his experience in California. I have had nearly thirty-seven years "experience" in California, and about twenty-five of that has been devoted to apiculture. There is nothing strange nor startling about Subscriber's experience when one knows the conditions here. The climate here, warmer than exists in most of the States, induces thousands of the hobo class to come. They are usually found counting ties along the railroads or else in squads or bunches of half a dozen or a dozen at the hobo camps along the railroads cooking their mulligan stew in an old can. Not infrequently these pestiferous fellows have in their stew a chicken from the much-hated rancher's henhouse, together with potatoes and other edibles gathered at random from the fields, and that, with a chance loaf of bread begged from the good lady of the near-by farm, gives a feast for the "squad."

These hoboes may justly be classed into two lots—professionals and blanket men. The professionals have reduced the system to such a science that they rarely "sleep out." As a rule they are the smooth fellows who try to keep up a better appearance, and get a bed furnished if they can, in some bunk house about the large farms where many men are employed. They do not carry a bed except in the winter season, and sometimes not then. These professionals are divided into two classes—those who work part of the time, and those who never work.

Well, the blanket men are usually a better set to have around than the professionals, but the same danger exists in contact with either. I speak from sad experience. My friends, too, have often had the experience of having been stocked up with vermin (we always just call them lice or graybacks), from the hoboes. It has come to pass that here in California not one of them will be hired by any self-respecting apiarist or farmer except for a short time when an extreme emergency demands help.

The class of apiarists that Subscriber tells about working for, however, has a hard time generally in keeping or securing decent help, so they have to take what comes, and too often it is dear help then even though the pay be only $30 a month. I hope to see the day when the State law will regulate the premises of the beeman as thoroughly as does the present State dairy law the premises of the dairyman. Make them clean up, if they have not enough pride and self-respect to clean up themselves.

I have kept bees in several counties in this State, and have worked for a number of apiarists; and a cleaner, more refined lot of men I never met as a class than the California apiarists. Most of them are Christian men. Many apiarists pay $1.50 per day and board when they hire help.

Ceres, Cal.

THE TREATMENT OF EMPLOYEES ON A BEE-RANCH.

I notice a communication, "The Other Side," Jan. 15, page 58, under the above caption. Will you please allow me to refute, at least in part, a portion of the statements made, and to give some facts on the other side? My brother and I run 800 colonies for The J. W. George Bee Co., and receive as wages $65 a month each through the season (eight to ten months). We have access to a grocery store, and have every thing we wish to live on—good camps and rigs are furnished us to go to our outyards. Mr. George takes us to Sunday-school, and Mrs. George comes out and cleans up for us sometimes, and cooks us a nice dinner. I do not think good and worthy labor ever goes begging in California.

Imperial, Cal. Thomas Y. Atchley.

A Paper-hanger's Tools for the Apiary; Fountain Pen Filler for a Foundation Fastener

Being a paper-hanger by trade I have been using some of my paper-hanging tools to good advantage in my apiary. Among them is the clipped-point wall-scraper, three inches wide, which I use in scraping hives, bottom-boards, for prying, etc., the point being clipped in such a way as to reach in corners better than the regular scraper or putty-knife.

I also use my 16-inch smoothing-brush in brushing the bees off the combs, which takes them off at one sweep.

Another little tool I am using to advantage is a fountain-pen filler, or eye-dropper, as a wax tube. I have a can about two or three inches deep, the top being narrow enough to prevent the tube, when standing upright in the wax, from falling over. This can, about two-thirds full of wax, is placed over a lamp which can be kept at the proper temperature for flowing freely by regulating the blaze. By using a small tube of this kind I can do very neat work in fastening foundation.

I have read that some beekeepers are having trouble with the spur wire-imbedder weakening the foundation so that it breaks at the wire under the weight of the bees. I have overcome this trouble with my little wax tube, with which I can run so small a stream of wax down the crease over the wire, strengthening the foundation very materially.

Bedford, Iowa, May 17. Tom Parker.

Heads of Grain from Different Fields

What are the Difficulties in Shipping Bees without Combs?

Dr. C. C. Miller:—I want to buy a lot of queens with 1 to 3 lbs. of bees without combs of brood or frames, and put them in ten-frame hives with full sheets of foundation. Kindly advise me what I am to *guard* against in order to prevent its being a failure, for, buying bees on combs, I am liable to get foul brood. The A. I. Root Co. have shipped bees by the pound this past summer to test it, and have been successful. I will not have any drawn combs or brood—only foundation in full sheets in Hoffman frames.

Canastota, N. Y., Jan. 6. WM. P. FRITZ.

[Dr. Miller replies:]

I had three separate shipments of this kind, and had difficulty in only one respect; so I know of only one thing to put you on your guard against. Otherwise a cage of bees shipped in this way may be treated exactly as a swarm. My one trouble was to get them out of the cage. The first lot that came was a beautiful sight to me, they looked so nice and comfortable. They had a pleasant look, too—a smiling look, you might say, as if saying to me, "Just see what a nice place we have here, snug as a bug in a rug; nothing better could be desired." "Yes," I replied, "that's a nice cage, but I can give you something better. I'm an old beekeeper, and I know all about bees. I'll soon have you out of that."

I put into an empty hive a brood-comb containing some honey, set the cage in the hive beside it with the opening of the cage directly facing the comb, covered up the hive and went away, leaving the bees to come out and cluster on the comb at their leisure. When I went back later in the day to take out the empty cage, there was no empty cage there. It was just as full of bees as ever. I began to think that may be I didn't know all about bees after all.

I'll tell you later how I managed to get them out; but first I want to tell you about the right way, as learned from Medina, to which place I applied for light as to the right way. It seems that they too had suffered under the delusion that I knew all about bees for they had sent no instructions as to getting out those bees. Promptly came back the response, "Shake them out, just as you would shake out any swarm!" Sure enough! how simple! Why hadn't I thought of that?

So I was ready when the next lot came. I opened the hole in the cage, and gave it a gentle shake. I didn't want to be too rough with those bees. But the shake was too gentle. The bees stayed right where they were. Then I shook harder, and a few bees were thrown out. To all further shaking the bees replied, "We're quite comfortable where we are, thank you," and stayed right where they were.

Then I set the cage on the top-bars, the opening of the cage at the bottom, and covered over the rest of the hive with little boards. I then blew a stream of smoke horizontally at the top of the cage, kept the smoke going steadily, and lowered it as the bees went down until the cage was empty.

You intend to put your bees upon foundation; but I think you will do well to borrow a frame of brood for the bees to go down upon, and then you can take away the brood as soon as the bees are out of the cage.

Marengo, Ill. C. C. MILLER.

[Bees will shake out of a small cage because the filling-hole is relatively large to the size of the cage; but in the larger sizes this is not always practicable. A better way is to take off the wire cloth on one side, shake, and then lay that side of the cage over the set of combs or frames on which they are to be hived. If there is a frame of unsealed brood and honey it will be better. A frame of eggs and young brood will "draw" as nothing else will. In a few hours all the bees ought to be out of the cage, and on the brood.—ED.]

Golden Bees Hardy, Gentle, and Good Honey-Gatherers

After reading Mr. Snyder's article, Jan. 15, page 53, I felt like throwing my hat into the air, it did me so much good. I have noticed that our editor for some time has given the Goldens the "black eye." I have felt like speaking out for Goldens, but have been afraid to, for we little fellows can't make noise enough for any one to hear us, especially when "one of the largest honey-producers, and a queen-breeder as well," has the floor.

A few years ago I bought some red-clover queens, and then the season following a Golden queen. I kept them in the same yard and watched them carefully. I found the Goldens as hardy, gentler, and better honey-gatherers than the three-banders. I remember well two three-banded queens and their bees. One queen and her bees were light in color for three-banders, and her bees were more gentle than the darker ones.

The darker bees swarmed out one day; and when I undertook to hive them they would sting. So I killed all my three-banded queens and used the Golden queen for a breeder. The Goldens worked red clover just as well as the three-banders. After this I saw the queen-breeder that I bought my Golden queen from, and he told me that he had quit breeding the three-banders because he liked the Goldens much better, and that they were better honey-gatherers, and more gentle.

By the way, I have two Swarthmore pedigreed Golden queens, and I intend to test them out; but I am afraid they will not have bees gentle enough for my little children to "grab out honey by handfuls." But one thing is sure, if they prove to be as cross as the three-banders I just told you about, I will pinch their heads.

Of the three leading types of beef cattle, two are bred for color as well as beef. The Aberdeen-Angus are black, the Herefords must have white faces, the Durham or shorthorns may be "off" in color. But what of these cattle at the international stock show, Chicago? The types that carried off most of the ribbons were bred for color as well as beef. Why not honey and color in bees as well as beef and color in cattle?

Naylor, Mo., Jan. 29. R. O. MARLIN.

[GLEANINGS certainly does not wish to give any strain of bees the "black eye" if such is not warranted. We merely maintain, as we have explained before, that, while many individual colonies of Goldens are hardy and gentle, the majority of them are below the average of the leather-colored Italians in these two points. Note the opinion expressed by G. A. Barbisch which follows; also that reported by E. G. Ward on another page.—ED.]

Golden Bees Do Not Stand Cold Winters

I have been experimenting with golden Italians for the last five or six years, sending for queens from queen-breeders all over the country; but I am sorry to write that I have been disappointed with them in every instance. They can not stand the severe cold and backward springs we have up here in the North. If they do not die altogether they dwindle so that they are no good whatever in storing surplus. They are very backward in breeding up early in spring, and are much slower than the leather-colored Italians. They swarm about as much as any bees I ever had, and they are just as cross and irritable as any Italians I ever had in my yard. These Goldens may be all right in the South; but

one thing is certain—they can not stand the cold and rigid weather of the North.

They are beautiful bees to look at, but that's about all there is in their favor. In nearly twenty years of beekeeping experience, and after trying nearly every strain of bees advertised I have found the pure leather-colored Italians ahead of all the rest—at least they are the best bees for this locality. The past season, when so many bees died, the Goldens were the first to succumb; and while many of my Italians pulled through, not one of the Golden colonies did. In the future I shall have none other than the leather-colored.

La Crescent, Minn., Jan. 21. G. A. BARBISCH.

Hoffman Frames with Square End-bars; Some Relics of the Past

I like the Hoffman frames in every way except that mean V shoulder. It slips over the shoulder of the opposite square one. Why not make all the shank shoulders square?

The Langstroth hive is hard to beat, and the Italian bee has come to stay; but what about the hive that was going to do away with swarming? I think it was called the "reversible" hive. It was claimed to stimulate brood-rearing by turning it upside down; and if at any time you suspected a swarm was about to issue, all you had to do to forestall the swarm was to give it another turn upside down. I wish I had such a hive. I have been looking for it ever since.

Have queens mated in confinement been a success?

What was the outcome of the lamp nursery?

Slate River, Ont., Dec. 10. J. M. MUNRO.

[There has been some objection to the V edge of the end-bars of the Hoffman frame. The purpose of this was to cut the propolis, as the frames are crowded together. Some beekeepers wish the end-bar square on both sides, and we have made Hoffman frames in this way, although by far the greater majority prefer the V edge, for the reason stated. There is no question but that in localities where propolis is very bad the square edge end-bars are much harder to keep accurately spaced than the V edge.

Reversible hives and reversible frames have come and gone, and probably more will come and go in the future. There are some advantages to be gained by reversing the frames or reversing the whole brood-chamber; but in the end the extra expense of the equipment and of the labor required probably offset these advantages.

So far as we know, there are no experiments being conducted at the present time along the line of getting queens mated in confinement. The experiments that seem the nearest to success were those in which mammoth tents of wire cloth were used, but there were so many failures that the few successes did not pay for the expense of the undertaking.

The lamp queen nursery or incubator is likewise a thing of the past. There were possibilities, but it was found that bees can attend to work of this kind better than man aided by artificial heat, etc.—ED.]

Carniolans Not Immune to Disease, but Fully as Resistant to it as Italians

Nov. 15, page 744, H. Perkins, of Artesia, Cal., mentions the claim made by Eugene Baker, of Los Angeles, that Carniolans are more resistant to European foul brood than Italians, and asks that others having tried them give their experience.

I have been battling with European foul brood for two years, my apiary being located about half a mile from Mr. Baker's. When I first discovered the disease I purchased a few leather-colored Italian queens, and with cells from these I requeened my apiary. By winter they were, to all appearances, free from disease. As most of my colonies were weak, and the following spring was cold and unfavorable, the disease broke out anew. Many colonies showed but an occasional bad cell; but I decided to treat all that showed any disease. Nearly all the queens were full-blooded Italian, but mated to black or dark hybrid drones.

As Mr. Baker seemed to be having better success with Carniolans I procured some eggs and larvæ from his bees, and raised cells with which I requeened nearly all of my apiary. They cleaned up nicely, as they had done the previous season, but in like manner the disease reappeared later on. These queens were also mismated, no doubt, though it is difficult to tell from the appearance of the bees. As there are hundreds of colonies in other apiaries, and in houses and rocks near by, it is a difficult undertaking to cure disease permanently or to get queens of any race purely mated. On this account I ordered two dozen Carniolan queens from the same breeder from whom Mr. Baker gets his. These were placed in strong and apparently healthy nuclei. Two were lost in introducing; and in the remaining twenty-two disease appeared in six before fall. I also ordered two more Italian queens at the same time, and later two Caucasians. One of the Italian colonies became slightly diseased late in the summer, but the Caucasians have shown no disease so far.

In the fall of 1911 I had 100 colonies. While the most of these contained mismated Italian queens there were several purely mated, and also one colony of Banats. The queen was sent me for trial by the late Walter M. Parrish, of Lawrence, Kansas. That Banat colony is the only one of the hundred which has never shown a trace of disease up to the present time. I expect to try the Banats out further the coming season. Of the large number of diseased colonies which I have had during the past two years, in many cases it became necessary to unite several into one before treating by the Alexander method.

Most of those which became infected during the past summer and fall were taken in hand upon the first appearance of disease, and were cured by caging the queen for two or three weeks, or by placing the brood above an excluder. The latter plan, which I believe was first mentioned by Percy Orton, of Northampton, N. Y., I consider the best of any I have tried for mild cases, provided the colony is strong and already has a desirable queen. This plan will prove a success, however, only during a honey-flow, as at times when no nectar is coming in the bees will allow the dead larvæ to remain in the cells week after week, making no attempt to remove them.

As to the disease-resisting powers of the two races, my experience would indicate that the Italians are superior to the native blacks, and that Carniolans are equal to and possibly somewhat superior to the Italians. They are, however, by no means immune. Carniolans build up for our late flow better than the Italians, and for that reason I intend to continue keeping them, unless, after further trial, one of the other dark races should prove superior.

Monrovia, Cal., Jan. 1. LEVI J. RAY.

My Experience in Early Brood-rearing

I remember being located in a high cold part of northern Vermont where it was necessary to build up colonies quickly in order to keep up with the season. I used the old-style ten-frame Langstroth hive. The first day after taking the bees from the cellar I used to examine every colony; and as I did this I had an extra hive in which I had fitted a tight movable partition. I took out the comb with the most honey in it, putting this comb at the side of this extra hive. If this hive was to face the east I put this comb on the south side. Next I selected a good brood-comb with some honey in it, and scraped the cappings of this honey with a common table

fork, this making small holes in the cappings. I placed the two combs with brood in them next to a good brood comb with more or less honey in it. I used to scrape all combs with the fork, as this caused the bees to remove the honey which would stimulate them in brood-rearing. I spaced these five combs as near together as I could and leave a bee-space between them. I moved up the partition as close as I could and leave a bee-space. I then used a stick just fitting the entrance, and long enough to reach half way across the hive. After providing a narrow honey-board I shook the remaining combs in front of this five-frame hive, taking these combs and the old hive to the honey-house for safe keeping.

I took a large basket to the barn and filled it with chaff from the barn floor. I filled the empty side of this hive with chaff. I next took some old four-inch boards and made a frame or rim the exact size of the cap. I put this frame in place of the cap, and filled this extension level full of chaff, covering the honey-board three or four inches deep with chaff. I then placed the cap over all, and contracted the entrance to about one inch. I did this with all strong colonies, using fewer combs for the weaker ones. The hive being thus warm, the bees went to the field in large numbers, and were able to push breeding to the utmost.

I let them alone for about ten days. I then took the big basket, and with my hands removed most of the chaff, so I could move the partition. I always found the comb next to the partition filled with eggs and larvæ, also the center combs well filled with brood. I took another comb from the store hive and scraped the cappings with the fork and placed this comb next to the partition, and covered all again with the chaff. I made all additions of comb to this warm side of the hive. I had to make these additions every few days. When I got the hive nearly full of combs I removed all the chaff and the partition, filling the hive with comb. I had to work fast to keep ahead of the bees, as they would get the swarming fever. There was work in this, but it paid.

I recollect having a lot of nuclei; and when a swarm came off I hived it with a nucleus; and after removing the cells from the old stock I returned the old queen. In about three weeks she would lead out another swarm. I have thus had three prime swarms from a single old colony, and a surplus besides.

Lyndon, Vt., Feb. 26. H. E. HARRINGTON.

Prospective Co-operative Beekeepers' Association in New Zealand

The chief drawback to our industry here is want of organization; but there is hope that this will be rectified shortly. A movement is on foot to establish a co-operative association in Canterbury, and if enough support is forthcoming a company will be formed in time for next season's crop. A Dominion association may be formed eventually, something on the lines of the National Association in America. A committee was appointed at last conference held in Wellington last August, and the members have been collecting information. This committee will submit a scheme at the next conference, and there is every prospect that a workable scheme will be evolved. Promises of support have been received from many of the leading beekeepers who intend to be present when the next conference is held. Prizes this season are low, probably on account of the crop being so much above the average. It is hoped that an export trade will be established; and if this is done, the local market will be relieved. A comprehensive scheme of advertising is contemplated in connection with the above, as honey is not as extensively used as it deserves to be.

Christchurch, N. Z. E. G. WARD.

The Help of Bee Experts Wanted

I wish to suggest a possible opening in the way of what ought to be a good business. I keep bees because I must. My business demands it, yet it is impossible for me to give them necessary care or to look after treatment should brood diseases get among them. All through the country are farmer beekeepers who do not know how to work their bees. If a man were to come to me two or three times a season, certified as competent and trustworthy by a recognized authority, say the secretary of the National Association, or the State Inspector, I would gladly pay him three dollars for a day's work, or the work necessary, on my few stands. Perhaps I could better afford to pay five dollars than to let him pass on. So could others, though perhaps they would not.

It is possible that a bee expert could not develop a business at itinerant work; but I wish there were one whose territory would include my place. It would, of course, be absolutely essential that such a one be thoroughly grounded in the scientific knowledge of brood diseases, and competent to use the best methods, and exercise all the precautions necessary in treating and handling diseased colonies.

Carthage, Mo., Jan. 20. BENJAMIN C. AUTEN.

[Possibly some such plan could be worked out; but it occurs to us that in most parts of the country the traveling expense would be almost prohibitive. —ED.]

Wire Cloth in Connection with the Alexander Plan for Making Increase

I wish to add one improvement on the Alexander plan of prevention of swarming as given on page 314, May 1. When the change is made with the queen in the new hive, and the excluder on, put a wire screen on the excluder, and then set on the hive body containing brood. Then shake most of the bees in front of the new hive. What are left will care for the brood, and the heat will pass from the colony below, and will be saved. This makes the colony shaken the same as a natural swarm—no brood to care for, and it forces twice as many bees into the field.

In eight days remove the screen and cut out all queen-cells. The upper colony or hive body containing brood should be given a small entrance in front when the cage is first made. I have tried the plan a number of times without the screen, but in almost every case too many bees would go above with the brood. This discourages the queen so that in a few cases she stops laying. The plan is not a success without the screen unless with an extra populous colony or with very warm weather.

Simi, Cal., May 19. GEO. W. RICH.

A Lining for the Firebox of a Smoker

I have made a "discovery," or learned something, whichever way your old friends care to put it. Cut a piece of galvanized iron or good heavy tin as long as the circumference inside, and as wide as the depth of the fire-box on your smoker. Bend it into a hollow cylinder, and slip it into the fire-box. I have used a smoker thus for nearly a year, which had burned through before I put it in. If put in when the smoker is new it will certainly double the smoker's usefulness.

San Juan, Porto Rico, May 1. F. E. HARTWELL.

Alfalfa Does Well at High Altitude

On page 272, April 15, is an inquiry from J. W. Hontz, of Portales, N. M., regarding alfalfa at high altitudes. I am in the far-famed San Luis Valley, which is 50 miles wide by 100 miles long. The altitude is 7500 feet. Alfalfa does well, and the bees also do as well as I have ever seen anywhere.

WM. J. BAKER, M. D.

Monte Vista, Cal., May 21.

Our Homes

A. I. ROOT

And God said, Behold, I have given you every herb yielding seed, which is upon the face of all the earth, and every tree, in the which is the fruit of a tree yielding seed: to you it shall be for meat.—GEN. 1:29.

In all they ways acknowledge him, and he shall direct thy paths.—PROV. 3:6.

Behold the birds of heaven, that they sow not, neither do they reap, nor gather into barns; and yet your heavenly Father feedeth them. Are ye not of much more value than they?—MATT. 6:26.

My good friends, I have made another "great discovery." While it is not exactly new, I am sure it is absolutely true. The greatest part of my discoveries are, as a rule, *not* exactly new; but they are new to me, and wonderfully precious, for I feel that they come straight from the hand of the great loving Father. Years ago, when my good friend Terry said so much about simple eating, uncooked food, etc., I took a trip over to his place expressly to partake of one meal just as he recommends and practices. Some of you will remember I told you about it in these pages. My digestion was a little out of order on that day, and I did not know whether his "menu" would agree with me or not. Terry and his wife, who were living by themselves, have only two meals a day. I think the first one is about eight o'clock, and the other about two in the afternoon. When I arrived there at the usual dinner time, and was told that the hygienic spread was for myself alone, I begged that it should be simply uncooked food just as Terry writes about, and *nothing else*. Well, just now I remember only three things on the table—rolled wheat, uncooked; evaporated peaches, uncooked, soaked in cold water; and butter. Friend Terry figured up the cost; and although I had a good square satisfying meal, the cost was only *6 cents*. The wheat cost perhaps one cent, or a little more; the butter, one cent; but the peaches were so delicious, and I enjoyed them so much, that I ate about *four cents' worth*, and I do not know that I ever had a more satisfying meal, and, somewhat to my surprise, my digestion after it was perfect, with no disagreeable taste in my mouth afterward, *at all*. I do not remember what I had to drink; but I rather think it was some of Terry's beautiful cool filtered rain water; or it might have been roasted-wheat coffee; but I rather think it was just water.

Now, the reason I go into these details is as follows: Most of you know that my last meal for the day, say about five o'clock, consists only of apples—good ripe ones. In Florida I take a fair-sized grapefruit with my apples. I have tried mulberries, and, in fact, almost all kinds of berries and fruit as a substitute for apples, but none of them seem to answer as well. After I got back from Florida I happened to go into the grocery where we get our supplies, and there I saw a case just opened of beautiful evaporated California peaches. The peaches were, of course, dried with the skins on. They were unusually large, and looked so tempting that I took a pound of them. One of my happy surprises was that they were only ten cents. As they were fancy stock I thought the price would be a good deal more. Well, remembering my experience at friend Terry's years ago, I told Mrs. Root to soak them in water and not stew them at all. At the end of 24 hours I cut one of the great luscious halves in two, and put the quarter of a peach in my mouth. I at once uttered an exclamation of surprise. I believe it was not only the most delicious peach, but the most delicious food of *any* sort I ever tasted. You may remember I said something in the same strain about that baked dasheen. Now, I do not know whether those peaches *were* something extra, or whether I had somewhat neglected to give uncooked peaches the attention they deserve. I remember that, after my experience at Terry's, we bought some ordinary peaches and soaked them, but I did not think very much of them. These peaches were not only uncooked, but no sugar was added. They were plenty sweet; but it was the sweetness that *God*, through the influence of the California sunshine, put into them. I asked Mrs. Root if she had tasted them. She said she had not, but she drank some of the water they were soaked in. By the way, I think she put about one pound of peaches to a quart of water. At her suggestion I poured some of the water (or "juice") into a teacup, and took a drink. Well, if the taste of the peach was a happy surprise, the peach juice, or, if you choose to call it so, peach cider, was a greater surprise. It certainly was the most delicious fruit drink, or drink of any kind, I ever tasted.* It did

* By the way, once or twice every summer, and several times in the winter, at my Florida home, I have taken a glass of soda at the soda-fountains just to see what they have that entices so many men, women, and children to spend their nickels in this way; and I have several times thought that perhaps the "high cost of living" was brought about largely by the nickels deposited at the soda-fountains. Who pays for this expensive apparatus to be seen in most of our drugstores that dispense ice cream and soda? It is the nickels; and if you watch the crowds as they take their various sodas, you will find a lot of children, and perhaps grown-up people, who look as if they did not have any nickels to spare. I may say the same in regard to coca-cola and Hires' root beer. Now, if the present generation demands some such drinks, usually called "fruit juices," for

not seem possible that a pound of peaches should diffuse its natural juices through that whole quart of water so as to make it so delicious and nourishing.*

That book, "Starving America," has a lot to say about uncooked food, or the food eaten just as God and the bright sunshine and the summer showers made it. With these dried peaches, of course we get every bit of the skin or peeling, fuzzy down and all. After eating these soaked peaches with my apples for a couple of weeks past I feel there is a special element in the peach skins and juice that nature demands. It furnishes those mineral salts about which the author of that book has so much to say.

Our first text tells us how God planned in the beginning to give our bodies the nourishment they need. You will notice the special mention of the *fruit* of the tree, and that "to you it shall be for meat." Not only did God intend fruit should be not only a large part of our daily food, but he meant that we should take it and eat it *just as he gave it*—peelings and all, the way the animals eat it. In other words, the expensive and wasteful fashion of throwing away one of the most important parts of our daily food is a great blunder. The water the peaches are soaked in contains a large part of the nourishing property of the peach. In the same way, the water in which your potatoes are soaked over night is rich and nourishing, containing mineral salts besides the starch, etc. The water the potatoes are *boiled* in is still more valuable. I know the women folks and the cook make objections; but by studying God's laws, and following out the plans he has laid down, I should not be surprised if Terry and I would be alive, and well and happy, long after a lot of you who think you must follow *fashion* in eating (as well as in dress) are dead and gone. In fact, Terry and I can even now, when we are in our 70's, look around and see *hundreds* who were born some time after we were, that have died—"worn out," so the world says.

Let us now touch a little on the second of our texts—"In all thy ways acknowledge him, and he shall direct thy paths." God will direct us all as to what we shall eat and how we shall live, just as well as in spiritual matters, if we "acknowledge him" and confess that his wisdom is greater than ours, and learn to take the food he has provided as he gave it, straight "from the producer to the consumer." We shall not only live long, but we shall be well and happy.

Of course, we can not eat *every* thing uncooked—that is, we can not very well at the present time; but as Terry and the author of that other book say emphatically, we should endeavor to have a *large part* of our every-day food uncooked. Let God's *sunshine* do the cooking. You may remember there is quite a nice book out now already entitled "Sun-cooked Food."

In the matter of drink, God sends the needed water in most localities straight down from the clouds—you might say straight down from heaven, and say it truthfully; but as it is inconvenient to get it straight from the clouds, especially when it does not rain, the duty devolves on us of *keeping* rain water. Now, in order to be sure that the water I drink is pure and wholesome, I drink only boiled rain water. I do not care very much about having it cold or very cold—so it is pure and clean, free from all vegetable matter, especially during hot weather. I have repeatedly drank water right from the cistern, say for a couple of weeks, and watched its effects. Then I would take the same water and have it boiled, and (of course) cooled off. I have not used *hot* water of late unless I eat something I ought not to eat, or overeat. Then a good big drink of hot water until it starts a good perspiration seems to be beneficial. I usually drink half a cupful of milk at my meals. Milk, like fruit, is the food God provided and intended for us, especially the little ones. Great pains is now being taken, I think, almost *all over the world,* to have the milk as well as eggs fresh and pure. Why, it is just "fun to live" when you are following God's plans, and when you let him direct and advise.

Sometimes it sounds extravagant to hear

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instance, remember that book, "Starving America," tells us the greater part of the ice-cream sodas have no fruit juice at all—only an imitation made mostly from the products or residue of our oil-refineries. Well, now, if such drinks are really *needed,* why not have fruit juice from the evaporated peaches instead of having them rot by the hundreds of tons? If you think I am mistaken, soak some evaporated peaches for 24 hours in pure cold water, and see if the drink is not ahead of any thing at the fountains. And this pure fruit-juice is straight from the hand of the loving Father.

* These peaches I am talking about were evidently very ripe when first spread out to be evaporated. Some of them, and I should say most of them, were probably soft and mushy; and I remember years ago in childhood of drying peaches out in the sun that were so soft that we just squeezed the stones out. On page 385 of our last issue, J. A. Green tells us of *hundreds of tons* of the finest peaches grown in the world rotted on the ground last August in Colorado. Now, if I am correct, evaporated peaches, where the work is properly done, can be kept safely year after year; and by soaking them in water according to Terry's plan you can have them *every day* in the year, almost as good, if not quite, as they were when picked from the trees. May God be praised for the beautiful peaches that are now produced, and for the improved methods of preserving them by evaporating so as to lose little or none of the deliciousness or healthfulness; and may God hasten the time when shorter cuts and less expensive cuts may be made from producer to consumer. How about "parcel post" for disposing of those "hundreds of tons" (in the shape of evaporated peaches) that were left to rot?

Terry keep insisting that correct living will cure you, no matter *what* the trouble is; but the longer I live, the more I am convinced he is right. Of course, we are all liable to accidents; and in such a case or at such a time we need the advice and skill of our expert physicians and surgeons. May God be praised for what has been accomplished, and is now being accomplished more and more every day in the line of intelligent surgery.

I suppose it will not be out of place to suggest in this talk that, aside from uncooked food and pure water to drink, we need to keep our bodies clean. Every inch of my body is washed with pure soft water, and well rubbed till dry, every day of my life, and I enjoy it, and would not think of taking up my tasks without it.

One thing more: Almost every day of my life I work at something until the perspiration starts through almost every pore of my skin, and until I feel tired enough to sit down at my desk. Last, but not least, I take a short nap before my noonday meals so that I rarely ever sit down at any meal exhausted or tired out. Of course, when I get up in the morning, and have my breakfast between five and six, I am in good trim because of my restful sleep; and this reminds me that when one gets his *digestion* in proper trim, as God intended it should be by the use of wholesome food, and not too much of it, there is almost no trouble about sleeping. When I have a large lot of books and papers that I feel as if I *must* glance over, at least hastily, I take another nap in the evening before going to my task, and then go to bed about ten o'clock; then I go to sleep instantly, and do not remember any thing or know any thing until toward five o'clock next morning.

Now for my concluding text. The dear Savior reminds us that God cares for the fowls of the air. Although they do not reap nor gather into barns, yet our heavenly Father feeds them. He tells them by instinct where and how to get proper and wholesome food. Then he asks the question, "Are not *we,* the crowning act of his creation, of more *consequence* than the birds of the air?" If he makes provision for them, has he not, in his infinite wisdom and loving kindness, also made provision for us? Did he intend we should be sick and ailing as so many are? *Should* we be ailing if we used the common sense he has implanted in us all, in studying out what his plans are?

As warm weather comes on, and I begin to protest against the fashionable way of clothing, I meet with remonstrance; and I am told that we must, at least to a reasonable extent, look like other people. Peter said, you will remember, in olden time, that we should obey God rather than man; and when fashion conflicts with health, I for one propose, at least to a certain extent, being *out* of fashion. The fowls of the air live out of doors; and I am sure God intended we should be out of doors at least a great part of our time. When any thing takes us indoors and keeps us at least a good many hours of the day under the influence of artificial heat, and without a great abundance of outdooor air, we have no right to expect to gain the blessings of health. People are committing suicide; in fact, the suicide mania is increasing if any thing; and I feel sure a lot commit suicide because they are disregarding God's laws.

There is not so much complaint, just now, about people being out of work. Everybody—good, bad, and indifferent, has a chance to work if he wants to; and I am sure it was God's plan that we should be busy, using our muscles and brains during all our working hours. I picked up a health journal a few hours ago, and read of a man who rushed into a doctor's office, and told the doctor he would give him fifty dollars, a hundred dollars, or even one thousand dollars, if he would make him well. At the same time this man's breath was reeking with the fumes of whisky and tobacco, and his face gave abundant evidence of excesses of every sort. When the doctor assured him there was no permanent help or hope unless he would leave off *all* of his bad habits, he got into a rage, and declared that if this particular doctor could not *give* him something he would hunt up a doctor who would. There is no help for such people along the line of God's plans. "Whatsoever a man soweth, that shall he also reap."

THE JAPANESE PROBLEM.

Quite likely I am too poorly posted to pass an opinion on the matter in question; but notwithstanding I wish to have a little say in regard to the matter. We are sending missionaries at great expense all over the world wherever there is sinful and suffering humanity; and although the great business world for a considerable time did not seem to recognize the importance of missionary enterprises, I am glad to say that within a few years or so things have changed. The skeptics and agnostics, and the business part of humanity (that has been so greedy for gold) just now are recognizing what the missionaries are doing to develop and civilize the uttermost parts of the earth. For a long time heathen nations held aloof, and could not be induced even to take notice of what the missionary

had to present. A little later, however, the current changed and began to go the other way; and these very heathen, both saints and sinners, began flocking to our shores in such numbers that there is talk about putting a stop to it; and while our United States is composed so largely of all tribes and colors of humanity it becomes a little difficult for those of us who are "born Yankees" to dictate for the rest of our people. Well, now, contrast the difference not only in expense but in the facility with which we can convert our *next-door neighbors,* compared with, for instance, the inhabitants of the islands of the sea on the other side of the globe. Ought we not rather to *rejoice* at the opportunity it affords us to spread the gospel among people of all nations who are sprinkled like salt throughout our whole domain in "the land of the free and the home of the brave?"

Ten years ago or more Mrs. Root and I paid a visit to some friends in San Francisco. They had a Japanese cook; and the lady of the house said he took *entire charge* of the dinner; and every one of us could testify that it was gotten up in fine style. The cooking was superb in every particular; and this young "Jap," as spry as a cat, did the whole of the work. So far as I can gather from the papers, the people of California object to the Japanese because they not only work *cheaper,* but are *better skilled* in housework and ever so many other things. California does not want them, because they stand in the way of—well, I should say of "bigger wages and shorter hours." I have been wondering what our good women folks who are obliged to employ hired help have to say in regard to the matter. Lots of industries are being abandoned (and this includes even the "chicken business") because faithful and skilled help costs so much. I would by all means put a stop to Japanese men coming over here for a little while, leaving their families in Japan. If I am correct, Arizona cuts off the Japanese unless they bring their *wives and children,* and become naturalized. There seems to be some good sense in such a course. It rejoices my heart to see that the *American Issue* for May 17 indorses my sentiment, at least to a great degree. Read the following:

CALIFORNIA AND THE JAPS.

In California 334 Japanese farmers are provoking the soil into growing things for the common good.

These Japs beat the world in intensive farming. They are sober, tremendously industrious, and have the science of raising much crop from a wee bit of land reduced to a science.

They bathe ever day, and eat fresh vegetables, nuts, and fruit instead of beefsteak at 28 cts. a pound.

The American farmers are beaten at their own game, and call upon the legislature to help them out by eliminating the Japs from the farming industry.

It is suggested that these 334 Jap farmers embark in the saloon business. Let them embark in the business of skinning the poor of their wages, the business of getting people drunk, and sending them home to beat their wives and pound their children.

Let these Jap farmers embark in the business of filling the stomachs of the city poor with forty-rod lightning instead of cabbages and potatoes. Let them embark in the business of debauching California citizenship, in the business of breaking up California homes, sending California boys to prison, and the girls to hell.

The California legislature won't kick on this, provided the Japs deliver over a portion of the profits in the form of license money.

If the little Japs will engage in the business of raising Hades instead of potatoes, all of these international complications will have been abated.

Now, dear friends, shall we not extend a hand of welcome to any sort of humanity, white, black, or *yellow,* if they come over here and become one of us, obey our laws, and bring their wives and children?

MISSIONARY WORK IN BARBADOS.

We have been fondly congratulating ourselves that cannibalism was about wiped off the face of the earth, and that the gospel of Jesus Christ had so thoroughly penetrated every remote spot that in the near future starvation, and cruelty of every sort, would soon be done away with as they are here in America, at least as a general rule. Below is a letter, however, from Barbadoes that should stir up not only America but the whole wide world. I am glad our good friend Hutchinson has taken the pains to inform us of such terrible things; and I hope this printed letter may be the means of awakening all mankind to what is still going on in some remote parts of the globe.

Dear Mr. Root:—At the close of another year I have to return your firm my hearty thanks for their kindness in sending me GLEANINGS for the previous 12 months. An equal debt of thanks is due to you, as senior partner, and with a preponderating vote in the counsels of the firm. It is a great pleasure to be able to render such thanks, as GLEANINGS has always a special welcome in my house; and your steady fight for righteousness is always of great interest.

During the year we have been interested in this island in the Putumago atrocities, as many of our people were at work in that region. What attracted public gaze to it, was, a man settled here, married, opened a hotel, which he gave somewhere, north or south, the doubtful compliment of naming after it. But Peru telegraphed here to arrest this proprietor of "The America," and the allegations made at his trial were something awful. Beating individual Indians to death was only pleasurably compared with other horrors. On one occasion he tied up 20 Indians, and flogged them. Then from morning to evening they were kept tied up under his house. In the evening he brought them out again, flogged more flesh off their bones, then laid them out on the ground, poured kerosene oil over them, covered them with wood, and set them on fire. That fiend in human form actually got off through the indifference of the Peruvian government!

W. G. HUTCHINSON.

St. Joseph Rectory, Barbados, Dec. 23.

Poultry Department

SITTING HENS, AND HOW TO MANAGE THEM.

There is an article by our good friend Stoddard in the *American Poultry Journal* that is worth ten dollars to me. I have read it over three times, and I am going to read it again. The article certainly ought to be worth the subscription price of the journal to *any one* interested in poultry. If you do not subscribe right out for a year, send for the June number at least, and read Stoddard's two articles in that issue. I know friend Stoddard is getting to be an old man like myself; and I have criticised him somewhat in times past on account of the complicated machinery he recommends. But notwithstanding all this, I believe our old friend has studied chickens more than any other writer who is living and making "things hustle" in chicken matters at the present day. The article that I have read with so much interest is on the value of poultry inventions, and is particularly about sitting hens. See the following extract:

I would a hundred times rather invent something that will aid in producing food for generations to come than create the advanced types of monstrosities in fowls and pigeons that have appeared in England for a century past all put together, were it possible for one person to do this.

A while ago I published in this magazine a description of what I named the "duplicate system" of yards for management of sitting hens, which method pleased me so much that I felt like jumping over a two-story house. I thought it was not capable of improvement. It has worked like a charm with me and saved endless labor and vexation of spirit; and had my sitters been of a better breed, with more uniformity of disposition, it would have worked still better. To find the very best breed for sitting purposes, in the sub-tropics, is a consummation devoutly to be wished. Climate is evidently not just right for heavy breeds.

I kept calling on poultrymen for years and years to invent good methods of taking care of hens engaged in sitting, but my appeals were largely in vain. In all, volumes of diatribes against mother hens have been written, though they are among objects most worthy of admiration found in the entire realm of animal life below the human race. "As a hen gathereth her chickens under her wings" suggests a picture than which there can be no finer in nature in the eyes of her true votaries.

The latest depreciation of the use of sitting birds I have seen is in the April issue of the *Poultry Advocate*, from a writer who gives a very valuable article, and is in part as follows:

"As the nests were attended to, the hens fed and watered, there were broken eggs discovered. This called for fresh nest-filling, washing of the eggs that remained whole, and sometimes the getting of a fresh sitter. One of the hard things in hatching with hens is the bowel trouble that comes from feeding injured corn to them. . . More hens soil their nests, more chicks die of bowel trouble, from musty corn, than all other causes. If in any doubt as to the corn—and you can not get other—bake it in the kitchen oven till the color of it is slightly darkened. Then cool and keep in dry box till needed."

The baking advice is excellent; but this writer has missed the most general cause of bowel trouble. It occurs from lack of exercise in twenty cases to one of musty corn. Sitters closely confined are afflicted as described time and time again, while their flock mates not engaged in sitting, but of the same age and breed, and fed on the same corn exactly, are exempt.

Study the actions of a sitter off her nest of her own will, with plenty of room to run and get up full speed, and fly to the fence top, or upon some other elevated object, and down again, and bustle around generally, and hunt up her flock for a short visit, and race back near her nest, then scamper away again. Once I thought these antics were merely manifestations of delight at respite from the irksome restrain of sitting, but now I know better. They are fraught with deep meaning like many other habits of animals. Probably hens which steal their nests do not have bowel trouble and foul their nests in one case in a thousand. I will warrant not a reader of this magazine ever knew of such a case.

TRIALS AND TRIBULATIONS.

Our writer's other vexations are familiar to readers. Hens do not return to their proper nests, for instance. The hen which steals her nest makes no such mistake. Her brain is loaded to the limit with thoughts about her nest, and her previous nest. She spent lots of time considering the matter in the first place, and compared various localities before she laid an egg. All her actions proceed like clockwork if she is not "taken off by hand" and "put back," and stirred up and confused generally. The more she is handled and made anxious about her nest, the worse she behaves. Even if she is quite a tame specimen, and not nervous on ordinary occasions, she is excited when the sitting fever is on. The love for her eggs is almost as strong as love for actual chicks, and all the fine program of nature is disarranged by a "brain storm."

What if some way could be contrived by which sitters could be let severely alone after eggs were assigned, all the time till hatching begins, just as if they had stolen their nests! Eureka! All fussing not only menaces success and vexes the poultryman, but takes up so much time as to mean good-by to profits.

Contrive some way of letting sitters alone, and they will regularly air and turn their eggs and carry out the whole of nature's exquisite program just as the one which steals her nest does.

You perhaps gather from the above that both writers refer to an arrangement for confining the sitting hen to a little yard or yards. Let me digress enough to say that it is virtually the same thing we frequently see advertised—the "natural-hen incubator, for only $3.00." I have shown it up again and again in years past; but still the advertisements are seen in a great part of our poultry journals. Briefly, the man has no incubator to sell at $3.00 or any other price, and he never had one. All he has to sell is a single sheet of paper—price $1.00; and if you do not buy immediately he will come down to 50 cents and then to 25, for his wonderful sheet of paper. He just tells how to give each sitting hen a little door-yard where she can eat and drink and take a little exercise. Now, friend Stoddard's plan as described in the June number of the *American Poultry Journal* is to make these yards a good deal longer. They may be three feet wide or less, and as long as

your ground will admit—the longer the better. Friend Stoddard recommends letting sitting hens severely alone. Instead of annoying them and getting them out of temper by human intervention, he lets the great God who made them do all the managing, or, in other words, he lets them follow out their own wonderful instinct. Let me digress a little right here:

Along about the first of April, in our Florida home, Wesley announced that a Leghorn hen had just come out of the brush with a fine brood of chickens. We went down, picked up the hen, gathered up her fifteen chicks, and put them in a coop. She behaved so nicely that I began to think she was a jewel of a mother. By some mishap, however, one of the chicks got out of the box just as we thought every thing was all right for the night; and when I tried to catch the chick her motherly instincts all at once were aroused. She got out of the box, and I had one of the biggest fights I ever had with a sitting hen. We finally got her put back, and I kept her several days shut in a coop. Finally I decided to let her go out for exercise. Her first performance was to dig the mulch away from the fruit-trees in our dooryard, sending the dried Bermuda grass "sky high" in her search for crickets for her brood of fifteen. When we "shooed" her out if the dooryard she got over into the cornfield; and when the chicks were a week old, she and they had been pretty much all over the premises. The fences of the convergent poultry-yard were no obstacles to her at all. In fact, her daily plan of getting over one particularly high fence was to fly up to a limb on a pine tree, twenty feet or more from the ground. She would fly right straight up and alight on that limb, and, after resting a while, sail down or "glide" as the flying-machine men do. The chicks were very soon following her everywhere. They did not need any feeding nor any thing else, apparently, for God's earth was fruitful enough and broad enough to give them all things needed. By the way, is there not here a lesson for poor humanity? If the fathers and mothers of our land had the grip and faith in their own muscles, and the ability to see what God has spread out before us, I do not think there would be much complaint about "the high cost of living."

Well, when we came away Mrs. Root declared that this particular hen would have to be sold with the rest of the two-year-old layers. The chicks were then about three weeks old; but they had become so independent that they did not seem to mind the loss of their mother at all. They were the last to get home at night so I could shut them up, and about the first to get out in the morning. Now, Providence permitting, I am going to raise a strain of chickens from these fifteen, even if they do defy fences and every other obstruction. I take it the little family is *still* unbroken. See the following letter.

Mr. A. I. Root:—Wesley came last Saturday, the 10th, dug the Irish potatoes, and sold the best of them and put the rest into the barrel in the cellar, and covered them with dry sand and put wire screen over to keep rats out. He dressed out the dasheens, and sprayed the chicken-house with kerosene to kill the mites. My dasheen looks very well, but rain would do them good. The fifteen little chicks seem to be doing well. They come over to see us every day and gather whatever bugs they can find. There is nothing they can harm, and we like to have them catch the bugs.

Bradentown, Fla., May 19. C. L. Harrison.

FRIEND STODDARD'S LATEST INVENTION.

You will notice in the above extract he has been studying on some plan of letting a sitting hen remain right on the nest where she first wanted to sit. She is not only to have a nest all to herself, but she is to have liberty to go off and fly on top of the fences or even on top of the barn if she chooses, and come back when she is ready. Come to think of it, however, she can not fly up on top of the barn, for this long narrow yard is to be covered overhead with poultry-netting or a few boards to give shade, say over the nest-box. Now for his plan for accomplishing all this or letting the poultry themselves accomplish it: The hens that lay the eggs to be used for hatching are in one yard. Adjoining this yard are the poultry-nests, each one having a runway, as I have explained. Of course we use nests enough (each with its little yard) so as to have one for each of the sitting hens, more or less. Each nest has a little door. If you close all but one, and there are no other available nests in the yard, or connected with it, your flock of probably 12 or 25 will all lay in that nest. If the nest is a good-sized one, shaded and ventilated, and at the same time darkened and secluded, a dozen hens may lay their eggs in it during the day.

There is one nest in my yard that the hens all seem to prefer, and several times I have found eleven eggs in that nest. By the way, down in Florida hens frequently begin to lay between six and seven o'clock in the morning, and quite often there are more or less eggs laid as late as four o'clock or even later. It seems to be a natural instinct on the part of the hens to lay where there is a nestful. You may recall the fact that I could not get the hens to lay in my newly planned nest until I put three or four eggs, *just laid*, in that nest. After that, they would lay there right along. Well, after the whole 12 or 25 have got a

fashion of laying in this one nest, especially if you have chosen a breed of sitters, pretty soon you will find there will be a hen that tries to sit on the eggs all night, and will fight if you try to put her off. Do not get her off. Do not annoy nor trouble her. Shut up that little door and open the one further along. As the pens are exactly alike, your flock of layers will never know the difference; and as soon as another hen wants to sit, shut her in and open the other doors, and so on till you have as many sitting hens as you want. If you have some choice eggs, put them in, say, after dark, disturbing her as little as possible. The nests, you will notice, are near the door where the fowls go in to lay. At the opposite end of these narrow yards you have some corn, dripping water, shells and grit, and the dust baths—that is, if the ground is not already suitable for a dust bath. If you want a diagram of the whole arrangement, send for that June number of the *American Poultry Journal,* 542 South Dearborn St., Chicago.

Whatsoever a man soweth, that shall he also reap. —GAL. 6:7.

FORTY CARLOADS OF POULTRY IN NEW YORK CITY WAITING ON THE STRIKE.

The particulars of the above I find in the Cincinnati *Packer* for May 24. The only reason why I give it place in our Poultry Department is that the New York buyers claim that these carloads of poultry were made very hungry, and then all at once given all the corn and *sand* they would eat. The buyer registers three specific complaints: First, that poultry is starved on its way from the West, then is overfed with sand and corn just before arriving in Jersey City, the extra weight of sand in the crops increasing the weight fully 15 per cent, which is a total loss to the buyer, and they (the buyers) have finally made a kick against that way of "doing business." Now, I do not know how true this is; but it seems to me almost incredible that it is possible to feed chickens *sand* until it represents fifteen per cent of their weight. Of course, this would mean *live weight.* But it is true that every man who is even a party to that kind of business should "reap" what is justly due him. If such is really the case, they had better get our good friend Billy Sunday to hold some meetings among the chicken men, and preach on the text that "honesty is the best policy." In fact, it is the only policy that will succeed in business year after year, and win heaven in the end.

"Wherefore do ye spend money for that which is not bread? and your labor for that which satisfieth not?"

Some time ago I read of a lot of poultry in California that seemed to be so unusually heavy that the buyer opened several, and found a lot of bullets had been pushed down their throats—probably after the fowls had been killed. Some of us have been congratulating ourselves that the people who work out in the open air, or, say, the "honest old farmer" and those who raise chickens and keep bees, are more honest than the city dwellers—middlemen, for instance. By the way, I wonder if it is true that *beekeepers,* any of them, are trying to work in "sand and leaden bullets" until their crops of *honey* are "podded out." God forbid.

High-pressure Gardening

SWEET CORN—A CHOICE STRAIN; HOW TO TREAT THE SEED TO KEEP OFF GRUBS, CROWS, ETC.

Some years ago a reader of GLEANINGS sent us some sweet corn that we folks at Rootville decided was ahead of any thing else we had ever gotten hold of. Well, we finally lost the seed, but the friend who sent it was kind enough to send us some more that got here just at planting time. Here is what he says about it:

The corn I sent you is the Gilmore. Some years ago I sent you some of it, and you said it was the best corn you ever saw. It is a cross between a sweet corn and the Tuscarora as host. Not a thing will touch grain or plant. Since 1847 I have prepared corn thus: For one peck of seed, immerse for a minute or less in hot or boiling water; drain, and immediately add two tablespoonfuls of pine tar. Stir briskly until every grain is coated with tar. Then add lime to dry and prevent sticking together. Please publish this; for if farmers practice it, and have good seed they will always have a good crop. It will add millions to the country.

Frank, Pa. MOSES GILMORE.

THE WAY THEY TEACH "HIGH-PRESSURE" GARDENING ON THE GROUNDS OF MENGO HIGH SCHOOL, UGANDA, AFRICA.

SEE PAGE 416.

Shortly after my talk about simplicity in dress, in our issue for May 1, I noticed a picture in the Planet Jr. catalog, and the proprietors of these celebrated hand cultivators have kindly loaned me the cut. I think I mentioned once that, while in Florida during July and August, I used to go out in the garden and sometimes work quite a spell in my night dress. As the poultry are all shut up tight during the night in order to let them out at the "peep of dawn" I was not only *obliged* to be up quite a spell

before the rest of the neighborhood, but I rather enjoyed it; and I remember thinking what a pity it was that folks could not go about all day in night dresses—that is, when the temperature is up to 80 or 85; and it also occurred to me that many of us would accomplish very much more if we were unhampered by fashion and clothing we do not need. We do not *know* at present just how much better off we should be. I can not tell exactly, by looking at the picture; but my impression is that some of the pupils(?) are well along in years. My good friends who run hand cultivators out in the fields, would it not be a luxury to be permitted to dress like that chap holding the cultivator on the right hand of the picture?

Temperance

ANOTHER STRAW WHICH SHOWS WHICH WAY THE WIND IS BLOWING; SALOONS BANISHED FROM THE PANAMA CANAL ZONE.

We clip the following from the *Union Signal:*

A SALOONLESS ZONE; NO SALOON LICENSES TO BE ISSUED IN THE CANAL ZONE AFTER JULY 1, 1913. BY ABBIE B. HILLERMAN,

National W. C. T. U. Representative in Canal Zone.

At a meeting of the Isthmian Canal Commissioners held April 24, 1913, the following resolution was adopted: "*Resolved*, That no license for the sale of intoxicating liquors in the Canal Zone be granted by the Commission for any period beginning on or after July 1, 1913." During the present fiscal year there were five Canal Zone settlements where saloons were permitted; namely, New Gatune, Gorgona, Matachin, Empire, and Culebra. Thirty-eight licenses were granted in these places last year. The proximity of Empire to Camp Otis made it advisable to stop granting licenses there, and the same reason applies to Culebra, according to the Canal *Record*, another argument against the canteen in the army.

The highest number of licenses issued at any time was sixty-three in 1908 and 1909. At the present time there are thirty-five. A license fee of $100 per month was required; and for the period of six years during the operation of this system the sum of $326,200 has been received from this source by the government, represented by the Isthmian Canal Commissioners. This only shows the financial side. The toll of blighted manhood and ruined characters which has been collected by the rum traffic is appalling. Three great American breweries are there.

We are thankful that there will be one exception at least to the statement that "The American saloon follows the American flag." With the eyes of the world centered upon this strip of land which is so soon to be the great ocean highway of nations, this action is most opportune. We believe that the thousands of pages of temperance literature sent to this section by the National W. C. T. U., together with the influence of temperance sentiment at home, has had some part in this victory. It is certainly in harmony with the views and actions of the President of the United States and his cabinet.

May the Lord be praised for the above. And it is my impression that the W. C. T. U. has had much to do with bringing about this happy result; and thank the Lord, also, for a President whose life and character are in harmony with the above.

The crowning engineering achievement of the world can not afford to be handicapped just at its completion by the presence of the saloon business and the liquor-traffic.

THE MILLENNIUM COMING THROUGH OUR GREAT RAILWAYS.

May be the above heading is pretty strong; but our great railway companies are at least having something to do with it. See page 234 of our issue for May 1. Then read the following letter.

Mr. A. I. Root:—In the May 1st issue of GLEANINGS you quote a letter issued by a railroad claim agent to their employees, and ask some one to send you the name of the road. I am glad to say this letter was sent out by Mr. C. W. Egan, claim agent for the B. & O. R. R., Baltimore, Md. The B. & O., besides being the first road in this country, was the first to issue an order forbidding their employees drinking intoxicating liquors or frequenting places where they are sold, either while on or off duty. I am glad to see most of the railroads are requiring the same from their employees now.

I have been employed by this company for about fifteen years as telegraph operator, and am located at present near the historic town of Harper's Ferry, W. Va. I enjoy your Home talks very much, and hope you may live to keep up the good work for many more years.

Keller, W. V., May 29. W. F. ANDES.

Hurrah for the B. & O. Railway Co.! "Long may they wave"!

CIGARETTES AND CONTAGIOUS DISEASES.

We clip the following from the *South Dakota Farmer:*

Agents of the New York Factory Inspection Commission have made the discovery that many thousands of hiigh-grade cigarettes are made in tenement houses among which contagious diseases are found. The woman of the house employs odd moments between housework and caring for sick children in rolling these "coffin nails," licking them with her tongue to hold the paper together.

This disclosure may not suggest any thing to the youth and their elders who smoke cigarettes, but it ought to.

And once more let me ask why the Health Commission of the United States, while waging war on pernicious and habit-forming drugs, does not turn its attention (and *guns*) toward cigarettes and the whole cigarette business. Is there not reason for it aside from what is referred to in the above clipping. Making idiots of our boys is perhaps even worse than sending them to their coffins through contagion.